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ABSTRACT

This bibliography was developed for the use of researchers and practitioners in the area of individual differences, learning and instruction. It is not exhaustive, given the enormous amount of writing on the topic, but hopefully it contains a useful selection of the work in this area. (Author)

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INDIVIDUAL DIFFERENCES, LEARNING AND INSTRUCTION: A SELECTED BIBLIOGRAPHY

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Working Paper No. 92

INDIVIDUAL DIFFERENCES, LEARNING AND INSTRUCTION: A SELECTED BIBLIOGRAPHY

Edition One

by Frank H. Farley

Report from the Project on Motivation and Individual Differences in Learning and Retention

Frank H. Farley, Principal Investigator

Wisconsin Research and Development
Center for Cognitive Learning
The University of Wisconsin
Madison, Wisconsin

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STATEMENT OF FOCUS

The Wisconsin Research and Development Center for Cognitive Learning focuses on contributing to a better understanding of cognitive learning by children and youth and to the improvement of related educational practices. The strategy for research and development is comprehensive. It includes basic research to generate new knowledge about the conditions and processes of learning and about the processes of instruction, and the subsequent development of research-based instructional materials, many of which are designed for use by teachers and others for use by students. These materials are tested and refined in school settings. Throughout these operations behavioral scientists, curriculum experts, academic scholars, and school people interact, insuring that the results of Center activities are based soundly on knowledge of subject matter and cognitive learning and that they are applied to the improvement of educational practice.

This Working Paper is from the Motivation and Individual Differences in Learning and Retention Project in Program 1, Conditions and Processes of Learning. General objectives of the Program are to generate knowledge about concept learning and cognitive skills, to synthesize existing knowledge and develop general taxonomies, models, or theories of cognitive learning, and to utilize the knowledge in the development of curriculum materials and procedures. Contributing to these Program objectives, this project has these objectives: to determine the developmental role of individual differences and motivation-attention in the learning and memory process and to ascertain at what age certain individual differences become important in learning and memory and at what age certain motivation-retention relationships emerge; to develop a theory of individual differences and motivation in learning and memory; and to develop practical means, based on the knowledge generated by the research, as well as synthesized from other sources, to maximize the retention of verbal material.

CONTENTS

		Page
	Abstract	vii
I.	General References	1
II.	Methodological References.	7
III.	Aptitude x Treatment Interaction (ATI) Research, Theory and Methodology.	13
IV.	Individual Differences and Learning (non-ATI Research) . .	33
V.	Programs and Packages for Individualized Education	45
VI.	Miscellaneous.	53

ABSTRACT

This bibliography was developed for the use of researchers and practitioners in the area of individual differences, learning and instruction. It is not exhaustive, given the enormous amount of writing on this topic, but it hopefully contains a useful selection of the work in this area. The major categories by which the bibliography is organized are not mutually exclusive, and some overlap occurs. Accordingly, criticisms of the category assignment of many items could be made and are invited. Intensive experimental and developmental research into individual differences in relation to learning and instruction is in its infancy; many of our current categories are at this stage primarily heuristic.

Research papers, technical reports, theses and so on that may not be included in the current version are in some cases referenced in books or extensive reports that are cited in the relevant section.

Readers who know of work that should be included in this bibliography are appreciatively invited to submit recommendations for inclusion in the next edition.

I

GENERAL REFERENCES

Adorno, T. W. The authoritarian personality. New York: Harper & Row, 1950.

Anastasi, A. Differential psychology. New York: Macmillan, 1958.

Anderson, R. C. Educational psychology. Annual Review of Psychology, 1967, 18, 129-164.

Berlyne, D. E. Curiosity and education. In J. D. Krumboltz (Ed.), Learning and the educational process. Chicago: Rand-McNally, 1965.

Bloom, B. S. (Ed.) Taxonomy of educational objectives: Handbook I, Cognitive Domain. New York: David McKay, 1956.

Bloom, B. S. Stability and change in human characteristics. New York: Wiley, 1964.

Bloom, B. S. Learning for mastery. In M. C. Wittrock (Ed.), Evaluation Comment. Vol. 1, No. 2. Center for the Study of Evaluation of Instructional Programs, University of California, Los Angeles, 1968.

Buros, O. K. (Ed.) The sixth mental measurements yearbook. Highland Park, N. J.: Gryphon, 1965.

Burt, C. The structure of the mind. British Journal of Educational Psychology, 1949, 19, 100-199.

Campeau, P. L. Selective review of literature on audio-visual media of instruction. In L.J. Briggs, P.L. Campeau, R.M. Gagné, & M.A. May (Eds.), Instructional media: A procedure for the design of multimedia instruction, a critical review of research, and suggestions for future research. Pittsburgh: American Institutes for Research, 1967.

Carroll, J. B. A model of school learning. Teachers College Record, 1963, 64, 723-733.

Carroll, J. B. School learning over the long haul. In J. D. Krumboltz (Ed.), Learning and the educational process. Chicago: Rand-McNally, 1965.

Coleman, J. S. Equality of educational opportunity reconsidered. Washington, D.C.: United States Government Printing Office, Superintendent of Documents, Catalog No. FS 5.238:38000, 1966.

Cronbach, L. J. The two disciplines of scientific psychology. American Psychologist, 1957, 12, 671-684.

Cronbach, L. J. Psychological background for curriculum experimentation. In P. C. Rosenbloom & P. C. Hillestad (Eds.), Modern viewpoints in curriculum. New York: McGraw-Hill, 1964.

Cronbach, L. J. Heredity, environment, and educational policy. Harvard Educational Review, 1969, 39, 338-347.

Cronbach, L. J., & Suppes, P. C. (Eds.) Disciplined inquiry for education. New York: Macmillan, 1969.

Datta, L. A report on evaluation studies of Project Head Start. Paper presented at the meeting of the American Psychological Association, Washington, D.C., 1969.

Dubin, R., & Taveggia, T. C. The teaching-learning paradox. Eugene, Oregon: University of Oregon Press, 1968.

Eckstrand, G. A. Individuality in the learning process: Some issues and implications. The Psychological Record, 1962, 12, 405-416.

Eels, K. W., Davis, A., Havighurst, R. J., Herrick, V. E., & Tyler, R. E. Intelligence and cultural differences. Chicago: University of Chicago Press, 1951.

Eysenck, H. J. Personality and experimental psychology. Bulletin of the British Psychological Society, 1966, 62, 1-28.

Eysenck, H. J. Intelligence assessment: A theoretical and experimental approach. British Journal of Educational Psychology, 1967, 37, 81-98.

Ferguson, G. A. On learning and human ability. Canadian Journal of Psychology, 1954, 8, 95-112.

Ferguson, G. A. On transfer and the abilities of man. Canadian Journal of Psychology, 1956, 10, 121-131.

Ferris, F. L., Jr. Testing in the new curriculum, neumerology, "tyranny," or common sense? School Review, 1962, 70, 112-131.

Fleishman, E. A., & Bartlett, C. J. Human abilities. Annual Review of Psychology, 1969, 20, 349-380.

Gage, N. L., & Unruh, W. R. Theoretical formulations for research on teaching. Review of Educational Research, 1967, 37, 358-370.

Gagné, R. M. (Ed.) Learning and individual differences. Columbus, Ohio: C. E. Merrill, 1967

Gagné, R. M., & Rohwer, W. D., Jr. Instructional psychology. Annual Review of Psychology, 1969, 20, 381-418.

Getzels, J. W. & Jackson, P. W., Creativity and intelligence. New York: Wiley, 1962.

Glaser, R. Some implications of previous work on learning and individual differences. In R. M. Gagné (Ed.), Learning and individual differences. Columbus, Ohio: C. E. Merrill, 1967.

Glaser, R. Evaluation of instruction and changing educational models. In Proceedings of the Symposium on Problems in the Evaluation of Instruction, University of California, Los Angeles, 1967.

Goldberg, M. L., Passow, A. H. & Justman, J. The effects of ability grouping. New York: Teacher's College, Columbia University, 1966.

Guilford, J. P. The nature of human intelligence. New York: McGraw-Hill, 1967.

Gulliksen, H. Louis Leon Thurstone, experimental and mathematical psychologist. American Psychologist, 1968, 23, 786-802.

Heckhausen, H. The anatomy of achievement motivation. New York: Academic Press, 1967.

Hunt, J. McV. Intelligence and experience. New York: The Ronald Press, 1961.

Jensen, A. R. Cumulative deficit in compensatory education. Journal of School Psychology, 1966, 4, 37-47.

Jensen, A. R. The culturally disadvantaged: Psychological and educational aspects. Educational Research, 1967, 10, 4-20.

Jensen, A. R. Social class, race, and genetics: Implications for education. American Educational Research Journal, 1968, 5, 1-42.

Jensen, A. R. How much can we boost IQ and scholastic achievement? Harvard Educational Review, 1969, 39, 1-123.

Jensen, A. R. Do schools cheat minority children? Paper presented at the Seminar Series on Education. The Rand Corporation, Santa Monica, California, 1970.

Jensen, A. R. Selection of minority students in higher education. University of Toledo Law Review, 1970, No. 2 & 3.

Jensen, A. R. Genetics, educability, and subpopulation differences. Unpublished report, Institute of Human Learning, University of California, Berkeley, 1971.

Jones, M. B. Individual differences. In E. A. Bilodeau (Ed.), Acquisition of skill. New York: Academic Press, 1966.

Kagan, J., Moss, H. A., & Siegel, I. The psychological significance of styles of conceptualization, basic processes of children. In J. C. Wright & J. Kagan (Eds.), Monograph of the Society for Research in Child Development, 1962, 27.

Klausmeier, H. J., & Ripple, R. E. Learning and human abilities. New York: Harper, 1971.

Krathwohl, D. R., Bloom, B. S., & Masia, B. B. Taxonomy of educational objectives: Handbook II, affective domain. New York: David McKay, 1964.

Lesser, G. S., Fifer, G., & Clark, D. H., Mental abilities of children from different social class and cultural groups. Monograph of the Society for Research in Child Development, 1965, 30 (No. 4).

Lumsdaine, A. A., & May, M. A. Mass communication and educational media. Annual Review of Psychology, 1965, 16, 475-534.

Maccoby, E. E. (Ed.) The development of sex differences. Stanford: Stanford University Press, 1966.

Magnusson, D. Test theory. Reading, Mass.: Addison-Wesley, 1966.

McGeogh, J. A., & Irion, A. L. The psychology of human learning. New York: Longmans Green, 1952.

Melton, A. W. Individual differences and theoretical process variables: General comments on the conference. In R. M. Gagnè, (Ed.), Learning and individual differences. Columbus, Ohio: C. E. Merrill, 1967.

Mischel, W. Personality and assessment. New York: Wiley, 1968.

Mitchell, J. V. Education's challenge to psychology: The prediction of behavior from person-environment interactions. Review of Educational Research, 1969, 39, 695-701.

Morgenstern, A. (Ed.) Grouping in the elementary school. New York: Pitman, 1966.

Owens, W. A. Toward one discipline of scientific psychology. American Psychologist, 1968, 23, 782-785.

Rohwer, W. D., Jr. Learning, race and school success. Review of Educational Research, 1971, 41, 191-210.

Rothkopf, E. Z. Some theoretical and experimental approaches to problems in written instruction. In J. D. Krumboltz (Ed.), Learning and the educational process. Chicago: Rand-McNally, 1965.

Sharp, S. E. Individual psychology: A study in psychological method. The American Journal of Psychology, 1899, 10, 329-391.

Shulman, L., & Keislar (Eds.) Learning by discovery: A critical appraisal. Chicago: Rand-McNally, 1966.

Siegel, L. (Ed.) Instruction: Some contemporary viewpoints. San Francisco: Chandler, 1967.

Thelen, H. A. Classroom grouping for teachability. New York: Wiley, 1967.

Thurstone, L. I. Primary mental abilities. Psychometric Monographs, No. 1, Chicago: University of Chicago Press, 1938.

Thurstone, T. G. Primary mental abilities of children. Educational and Psychological Measurement, 1941, 1, 105-116.

Thurstone, T. G., Primary mental abilties, grades 4-6. Chicago: Science Research Associates, 1962.

Torrace, E. P. Education and creativity. In C. W. Taylor (Ed.), Creativity, progress and potential. New York: McGraw-Hill, 1964.

Tyler, E. L. The psychology of human differences. (3rd Ed.), New York: Appleton-Century-Crofts, 1965.

Vale, J. R., & Vale, C. A. Individual differences and general laws in psychology: A reconciliation. American Psychologist, 1969, 24, 1093-1108.

Vandenberg, S. C. "Tests" in Russia? American Psychologist, 1957, 12, 523.

Vernon, P. E. The structure of human abilities. New York: Wiley, 1950.

Vernon, P. E. The structure of human abilities. London: Methuen, 1961.

Vernon, P. E. Ability factors and environmental influences. American Psychologist, 1965, 20, 723-733.

Walberg, H. J. A model for research on instruction. School Review, 1970, 78, 185-200.

Walberg, H. J. Models for optimizing and individualizing school learning. Interchange, 1971, 2, 15-27.

Walberg, H. J., & Ahlgren, A. A social psychological model of the classroom. Paper presented at the meeting of the American Educational Research Association, Minneapolis, March, 1970.

Wallach, M. A., & Kogan, N. Modes of thinking in young children. New York: Holt, Rinehart, & Winston, 1965.

White, P. O. Some recent developments in learning theory. Actes D'un Collegue O.T.A.N., Nice, May, 1968.

Witkin, H. A., Dyk, R. B., Faterson, H. F., Goodenough, D. R., & Karp, S. A. Psychological differentiation. New York: Wiley, 1962.

Woodrow, H. The ability to learn. Psychological Review, 1946, 53, 147-158.

Zigler, E. Mental retardation: Current issues and approaches. In M. L. Hoffman & L. N. Hoffman (Eds.), Review of Child Development Research. New York: Russell Sage Foundation, 1966, 2, 107-168.

II

METHODOLOGICAL REFERENCES

Abelson, R. P. A note on the Neyman-Johnson technique. Psychometrika, 1953, 18, 213-218.

Aiken, L. R. Interactions among group regressions: An old method in a new setting. Research and Development Memorandum No. 42, Stanford Center for Research and Development in Teaching, Stanford, California, 1968.

Audley, R. J. A stochastic model for individual choice behavior. The Psychological Review, 1960, 67, 1-15.

Baloff, N., & Becker, S. W. On the futility of aggregating individual learning curves. Psychological Reports, 1967, 20, 183-191.

Barr, A. S., Eustice, P. E., & Noe, E. J. The measurement and prediction of teacher efficiency. Review of Educational Research, 1955, 25, 261-269.

Bloom, B. S. Testing cognitive ability and achievement. In N. L. Gage (Ed.), Handbook of Research on Teaching. Chicago: Rand-McNally, 1963.

Bogarty, R. S. The criterion method: Some analyses and remarks. Psychological Bulletin, 1965, 64, 1-14.

Bottenberg, R. A., & Ward, J. H., Jr. Applied multiple linear regression. (PRL-TDR-63-6) Lackland Air Force Base, Texas, 1963.

Bracht, G. H. Experimental factors related to aptitude--treatment interactions. American Educational Research Journal, 1970, 40, 627-645.

Bracht, G. H., & Glass, G. V. The external validity of experiments. American Educational Research Journal, 1968, 5, 437-474.

Brogden, H. E. Increased efficiency of selection resulting from replacement of a single predictor with several differential predictors. Educational and Psychological Measurement, 1951, 11, 173-196.

Burket, G. R. A study of reduced rank models for multiple prediction. Psychometric Monographs, 1964, No. 12.

Campbell, D. T., & Stanley, J. C. Experimental and quasi-experimental designs for research on teaching. In N. L. Gage (Ed.), Handbook of research on teaching. Chicago: Rand-McNally, 1963.

Cohen, J. Multiple regression as a general data-analytic system. Psychological Bulletin, 1968, 70, 426-443.

Cronbach, L. J. Correlation between persons as a research tool. In O. H. Mowrer (Ed.), Psychotherapy: Theory and problems. New York: Ronald, 1953.

Cronbach, L. J. Year-to-year correlations of mental tests: A review of the Hofstaetter analysis. Child Development, 1967, 38, 283-289.

Cronbach, L. J. Intelligence? Creativity? A parsimonious reinterpretation of the Wallach-Kogan data. American Educational Research Journal, 1968, 5, 491-512.

Cronbach, L. J., & Furby, L. How we should measure "change" or should we? Psychological Bulletin, 1970, 74, 68-80.

Cronbach, L. J., & Snow, R. E. Individual differences in learning ability as a function of instructional variables. Final Report, U. S. Office of Education Contract No. OEC4-6-061269-1217, School of Education, Stanford University, March, 1969.

DuBois, P. H. Multivariate correlational analysis. New York: Harper, 1957.

Ericksen, S. C. The zigzag curve of learning. In L. Siegel (Ed.), Instruction: Some contemporary viewpoints. San Francisco: Chandler, 1967.

Estes, W. K. The problem of inference from curves based on group data. Psychological Bulletin, 1956, 53, 134-140.

Farley, F. H., & Severson, H. H. The stability of individual differences in strength and sensitivity of the nervous system. Educational and Psychological Measurement, 1971, 31, 453-459.

Fischbach, T., & Walberg, H. J. Weighted and unweighted means for estimation: A note on the Humphreys-Daehler and Jensen papers. Technical Memo No. 5-70-1, Wisconsin Research and Development Center for Cognitive Learning, University of Wisconsin, Madison, 1970.

Fiske, D. W. The constraints of intra-individual variability in test responses. Educational and Psychological Measurement, 1957, 17, 317-337.

Fiske, D. W. An intensive study of variability scores. Educational and Psychological Measurement, 1957, 17, 453-465.

Fiske, D. W. Variability of responses and the stability of scores and interpretations of projective protocols. Journal of Projective Techniques, 1959, 23, 263-267.

Fiske, D. W. Homogeneity and variation in measuring personality. American Psychologist, 1963, 18, 643-652.

Fiske, D. W., & Baer, D. M. The coefficient of variation: An evaluation. Educational and Psychological Measurement, 1955, 15, 396-403.

Fiske, D. W., & Butler, J. M. The experimental conditions for measuring individual differences. Educational and Psychological Measurement, 1963, 23, 249-266.

Fiske, D. W., & Rice, L. Intra-individual response variability, Psychological Bulletin, 1955, 52, 217-250.

Flannagan, J. C., & Jung, S. M. An illustration: Evaluating a comprehensive educational system. Palo Alto, Calif.: American Institutes for Research, 1970.

Gulliksen, H. An analysis of learning data which distinguishes between initial preference and learning ability. Psychometrika, 1, 171-194, 1936.

Guttman, L. Order analysis of correlation matrices. In R. B. Cattell (Ed.), Handbook of multivariate experimental psychology. Chicago: Rand-McNally, 1966.

Harris, C. W. (Ed.) Problems in measuring change. Madison, Wisconsin: University of Wisconsin Press, 1963.

Hayes, K. J. The backward curve: A method for the study of learning. Psychological Review, 1953, 60, 269-275.

Hofstaetter, P. R. The changing composition of "intelligence": A study in T-technique. Journal of Genetic Psychology, 1954, 85, 159-164.

Holzman, W. H. Statistical models for the study of change in the single case. In C. W. Harris (Ed.), Problems in measuring change. Madison, Wisconsin: University of Wisconsin Press, 1963.

Jensen, A. R. Estimation of the limits of heritability of traits by comparison of monozygotic and dizygotic twins. Proceedings of the National Academy of Science, 1967, 58, 149-156.

Jensen, A. R. Varieties of individual differences in learning. In R. M. Gagné (Ed.), Learning and individual differences. Columbus, Ohio: C. E. Merrill, 1967.

Jensen, A. R. Jensen's theory of intelligence: A reply. Journal of Educational Psychology, 1969, 60, 427-443.

Johnson, P. O., & Neyman, J. Tests of certain linear hypotheses and their application to some educational problems. In J. Neyman & E. S. Pearson (Eds.), Statistical Research Memoirs, 1936, 1, 57-93.

Jones, M. B. Molar correlational analysis. Monograph No. 4, U.S. Naval School of Aviation Medicine, 1-93.

Jones, M. B. Practice as a process of simplification. Psychological Review, 1962, 69, 274-294.

Jones, M. B. Intertrial correlations under variations in effort. Ergonomics, 1968, 11, 175-181.

Jones, M. B. Correlation as a dependent variable. Psychological Bulletin, 1968, 70, 60-72.

Kruskal, J. B. Multidimensional scaling by optimizing goodness of fit to a nonmetric hypothesis. Psychometrika, 1964, 29, 1-27.

Kruskal, J. B. Nonmetric multidimensional scaling: A numerical method. Psychometrika, 1964, 29, 28-42.

Langeveld, M. J. Concerning the preparation for the use of exact methods in editing and interpreting psychological research programs. Acta Psychologica, 1968, 28, 246-265.

Levonian, E. Comment on "application of canonical correlational analysis to learning data." Psychological Bulletin, 1969, 71, 140-143.

Li, J. C. R. Statistical inference. Vol. 2 The multiple regression and its ramifications. Ann Arbor, Michigan: Edwards Bros., 1964.

Lingoes, J. C. An IBM 0790 program for Guttman-Lingoes smallest space analysis-I. Behavioral Science, 1965, 10, 183-184.

Lord, F. M. Elementary models for measuring change. In C. W. Harris (Ed.), Problems in measuring change. Madison, Wisconsin: University of Wisconsin Press, 1963.

Lubin, A . The interpretation of significant interaction. Educational and Psychological Measurement, 1961, 21, 807-817.

Madansky, A. The fitting of straight lines when both variables are subject to error. Journal of the American Statistical Association, 1959, 54, 173-205.

Mair, J. M. M. Experimenting with individuals. British Journal of Medical Psychology, 1970, 43, 245-256.

McNemar, Q. On growth measurement. Educational and Psychological Measurement, 1958, 18, 47-55.

Messick, S. The criterion problem in the evaluation of instruction: Assessing possible, not just intended outcomes. Educational Testing Service, Princeton, New Jersey, 1964.

Nanda, H. Factor analysis techniques for inter-battery comparison and their application to some psychometric problems. Unpublished doctoral dissertation, Stanford University, 1967.

Owens, W. A. A new technique in studying the effects of practice upon individual differences. Journal of Experimental Psychology, 1942, 30, 180-183.

Pace, C. R., & Stern, G. G. An approach to the measurement of physiological characteristics of college environments. Journal of Educational Psychology, 1958, 49, 269-277.

Severson, H. H., & Farley, F. H. The identification of individual differences in the strength of the nervous system. Technical Report No. 162, Wisconsin Research and Development Center for Cognitive Learning, University of Wisconsin, Madison, 1971.

Shepard, R. N. The analysis of proximities: Multidimensional scaling with an unknown distance function. Psychometrika, 1962, 27, 125-139; 219-246.

Shepard, R. N. A simplicial design for the analysis of correlational learning data. Multivariate Behavioral Research, 1967, 2, 83-87.

Shepard, R. N., & Carroll, J. D. Parametric representation of nonlinear data structures. In P. R. Krishniah, (Ed.), Multivariate analysis. New York: Academic Press, 1966.

Siegel, L., & Siegel, L. C. A multivariate paradigm for educational research. Psychological Bulletin, 1967, 68, 306-326.

Stern, G. G. Measuring non-cognitive variables in research on teaching. In N. L. Gage (Ed.), Handbook of research on teaching, Chicago: Rand-McNally, 1963.

Thurstone, L. L. Psychological implications of factor analysis. American Psychologist, 1948, 3, 402-408.

Tucker, L. R. An inter-battery method of factor analysis. Psychometrika, 1958, 23, 111-136.

Tucker, L. R., Damarin, F., & Messick, S. A base-free measure of change. Psychometrika, 1966, 31, 457-473.

Walberg, H. Generalized regression models in educational research. American Educational Research Journal, 1971, 8, 71-91.

White, P. O. A computer model for individual learning. Extrait d'un Symposium O.T.A.N., Paris, July, 1967.

III

APTITUDE x TREATMENT INTERACTION
(ATI) RESEARCH, THEORY AND METHODOLOGY

Abelson, R. P. A note on the Neyman-Johnson technique. Psychometrika, 1953, 18, 213-217.

Agnew, D. C. The effect of varied amounts of phonetic training on primary reading. Duke University Research Studies in Education No. 5. Durham, N. C.: Duke University Press, 1939.

Aiken, L. R., Jr. Mathemophobea and mathemophilia: An analysis of personal and social factors affecting performance in mathematics. Ann Arbor, Mich.: University Microfilms, 1960. No. 60-4822.

Aiken, L. R., Jr. Interactions among group regressions: An old method in a new setting. Research and Development Memorandum No. 42, Stanford Center for Research and Development in Teaching, Stanford, California, 1968.

Allison, R. B. Learning parameters and human abilities. Technical Report, Educational Testing Service, Princeton, N.J., 1960.

Alvord, R. W. Learning and transfer in a concept-attainment task: A study in individual differences. Technical Report No. 4. Project on Individual Differences in Learning Ability as a Function of Instructional Variables. Stanford: Stanford University, 1969. Originally a doctoral dissertation. Stanford University, 1967.

Amidon, E., & Flanders, N. A. The effects of direct and indirect teacher influence on dependent-prone students learning geometry. Journal of Educational Psychology, 1961, 52, 286-291.

Anderson, H. E., Jr., White, W. F., and Wash, J. A. Generalized effects of praise and reproof. Journal of Educational Psychology, 1966, 57, 169-173.

Ashbaugh, W. H. Effect on achievement of written responses to programmed learning material for students of differing academic ability. Psychological Reports, 1964, 14, 780-782.

Atkinson, J. W., & Reitman, W. R. Performance as a function of motive strength and expectancy of goal-attainment. Journal of Abnormal and Social Psychology, 1956, 53, 361-366.

Bar-Yam, M. The interaction of instructional strategies with students' characteristics. Unpublished manuscript, Harvard University, 1968.

Bar-Yam, M. The interaction of student characteristics with instructional strategies. A study of students' performance and attitude in a high school innovative course. Unpublished doctoral dissertation, Harvard University, 1969.

Becker, J. P. An attempt to design instructional techniques in mathematics to accommodate different patterns of mental ability. Dissertation Abstracts, 1967, A 28, 957-958.

Behr, M. J. A study of interactions between 'structure-of-intellect' factors and two methods of presenting concepts of modulus seven arithmetic. Dissertation Abstracts, 1967, A 28, 1698.

Bennett, D. M. On tests concerning lines and planes in hyperspace. Mettika, 1963, 7, 41-48.

Berliner, D. Effects of test-like events and note-taking on learning. Technical Report No. 2, University of Massachusetts Center for Educational Research, March, 1970.

Berliner, D. C. Aptitude-treatment interactions in two studies of learning from lecture instruction. Paper presented at the annual meeting of the American Educational Research Association, New York City, February, 1971.

Berliner, D. C., & Cahen, L. S. Trait-treatment interactions and learning. In F. Kerlinger (Ed.), Annual Review of Education, 1972, in press.

Beswick, D. G., & Tallmadge, G. K. Study of training equipment and individual differences: An analytical reconstruction of two learning style experiments in terms of curiosity theory. American Institutes for Research, Palo Alto, California, 1970.

Bigelow, G. Personality factors and independent study. Journal of Educational Research, 1970, 61, 33-40.

Bigelow, G., & Egbert, R. L. Personality factors and independent study. Journal of Educational Research, 1968, 62, 37-39.

Blatt, S. J. Effects of test anxiety and instructional context on problem solving. USOE, Cooperative Research Project No. 1382, 1963.

Bloom, B. S. Stability and change in human characteristics. New York: Wiley, 1964.

Bogarty, R. S. The criterion method: Some analyses and remarks. Psychological Bulletin, 1965, 64, 1-14.

Bond, G. L. The auditory and speech characteristics of poor readers. Teacher's College Bureau of Publications, Columbia University, New York, 1935.

Bottenberg, R. A., & Ward, J. H., Jr. Applied multiple linear regression analysis. Technical Documentary Report PRL-TDR-63-6. 6570th Personnel Research Lab., Aerospace Medical Division, Air Force Systems Command, Lackland Air Force Base, Texas, March, 1963.

Bracht, G. H. The relationship of treatment tasks, personological variables, and dependent variables to aptitude treatment interaction. Research Paper from the Laboratory of Educational Research, University of Colorado, 1969, No. 30.

Bracht, G. H. Experimental factors related to aptitude-treatment interactions. American Educational Research Journal, 1970, 40, 627-645.

Bracht, G. H., & Glass, G. V. The external validity of experiments. American Educational Research Journal, 1968, 5, 437-474.

Briggs, L. J. Sequencing of instruction in relation to comments. American Institutes for Research, Pittsburgh, Penn., 1968.

Brownell, W. A., & Moser, A. G. Meaningful versus mechanical learning: A study in grade three subtraction. Durham, N.C.: Duke University Press, 1949.

Buckland, P. R. The response in a linear program: Its mode and importance. Programmed Learning and Educational Technology, 1967, 4, 47-51.

Budoff, M., & Quinlan, D. Reading progress as related to efficiency of visual and aural learning in the primary grades. Journal of Educational Psychology, 1964, 55, 247-252.

Bunderson, C. V. Transfer of mental abilities at different stages of practice in the solution of concept problems. Research Bulletin RB-67-20, Educational Testing Service and Office of Naval Research Technical Report, 1967. Originally a doctoral dissertation, Princeton University, 1965.

Burket, G. R. A study of reduced rank models for multiple prediction. Psychometric Monographs, 1964, No. 12.

Burton, B. B., & Goldbeck, R. A. The effect of response characteristics in multiple life and choice alternatives on learning during programmed instruction. American Institutes for Research, San Mateo, Calif., 1962.

Bush, R. R., & Lovejoy, E. P. Learning to criterion: A study of individual differences. Stanford Colloquium, Stanford University, April 28, 1965. Mimeo.

Bush, W. J., Gregg, D. K., Smith, E. A., & McBride, C. B. Some interactions between individual differences and modes of instruction. Final Report AMRL-TR-65-228. Wright-Patterson AFB, Ohio: Aerospace Medical Research Laboratories, 1965.

Cahen, L. S. Aptitude-treatment interactions: Some conceptual and methodological considerations. Educational Testing Service, Princeton, N. J., 1969.

Cahoon, D. D., Peterson, L. P., & Watson, C. G. Relative effectiveness of programmed text and teaching machine as a function of measured interest. Journal of Applied Psychology, 1968, 52, 454-456.

Calvin, A. D., Hoffman, F. K., & Harden, E. L. The effect of intelligence and social atmosphere on group problem solving behavior. Journal of Social Psychology, 1957, 45, 61-74.

Campbell, D. T., & Fiske, D. W. Convergent and discriminant validation by the multitrait-multimethod matrix. Psychological Bulletin, 1959, 56, 81-105.

Campbell, D. T., & Stanley, J. C. Experimental and quasi-experimental designs for research on teaching. In N. L. Gage (Ed.), Handbook of research on teaching. Chicago, Ill.: Rand-McNally, 1963.

Campbell, V. N. Bypassing as a way of adapting instructional programs to individual differences. Journal of Educational Psychology, 1963. 54, 337-345.

Campeau, P. L. Test anxiety and feedback in programmed instruction. Journal of Educational Psychology, 1968, 59, 159-163.

Campeau, P. L. Level of anxiety and presence or absence of feedback in programmed instruction. Final Report 7-28-7670-229, American Institutes for Research, Palo Alto, Calif., 1965.

Carroll, J. B. The prediction of success in intensive foreign language training. In R. Glaser (Ed.), Training research and education. Pittsburgh: University of Pittsburgh Press, 1962.

Carroll, J. B. Instructional methods and individual differences: Discussion of Dr. Cronbach's paper. In R. M. Gagné (Ed.), Learning and individual differences. Columbus, Ohio: C. E. Merrill, 1967, 40-44.

Carroll, J. B., & Leonard, G. The effectiveness of programmed "Grafdrils" in teaching the Arabic writing system. Laboratory for Research in Instruction, Graduate School of Education, Harvard University, Cambridge, 1963.

Carroll, J. B., & Spearritt, D. A study of a "model of school learning." Monograph Number 4. Center for Research and Development on Educational Differences, Harvard University, 1967.

Carroll, J. B., & Wilson, G. F. An interactive-computer program for the Johnson-Neyman technique in the case of two groups, two predictor variables, and one criterion variable. Research Bulletin 69-68, Educational Testing Service, Princeton, N. J., 1969.

Carry, L. R. Interaction of visualization and general reasoning abilities in curriculum treatment in algebra. Unpublished doctoral dissertation, Stanford University, 1967.

Carry, L. R. Interaction of visualization and general reasoning abilities with instructional treatment in algebra. Dissertation Abstracts, 1968, A 29, 475-476.

Cartwright, G. P. Two types of programmed instruction for mentally retarded adolescents. Unpublished Masters' thesis, University of Illinois, 1962.

Cattell, R. B. Theory of fluid and crystallized intelligence: A critical experiment. Journal of Educational Psychology, 1963, 54, 1-22.

Cievtat, V. J., Stockwell, F. D., & Noble, C. E. The interaction of ability and amount of practice with stimulus and response meaningfulness (m,m') in paired-associate learning. Journal of Experimental Psychology, 1958, 56, 193-202.

Cohen, J. Multiple regression as a general data-analytic system. Psychological Bulletin, 1968, 70, 426-443.

Colquhoun, W. P., & Corcoran, D. W. J. The effects of time of day and social isolation on the relationship between temperament and performance. British Journal of Social Clinical Psychology, 1964, 3, 226-231.

Cronbach L. J. Year-to-year correlations of mental tests: A review of the Hofstaetter analysis. Child Development, 1967, 38, 283-289.

Cronbach, L. J. How can instruction be adapted to individual differences? In R. M. Gagné (Ed.), Learning and individual differences. Columbus, Ohio: C. E. Merrill, 1967, 23-39.

Cronbach, L. J., & Furby, L. How we should measure "change" -- or should we? Psychological Bulletin, 1970, 74, 68-80.

Cronbach, L. R., & Snow, R. E. Individual differences in learning ability as a function of instructional variables. Final Report, March, 1969, School of Education, Stanford University, Contract No. OEC4-6-061269-1217, U.S. Office of Education.

Davidson, R. E. Mediation and ability in paired-associate learning. Journal of Educational Psychology, 1964, 55, 352-356.

Davis, J. B., Jr. An investigation of the interaction of certain instructional strategies with the structure of basic mental abilities in the learning of some mathematical operations. Dissertation Abstracts, 1968, A 28, 2551-2552.

Davis, R. H., Marzocco, F. N., & Denny, M. R. Interaction of individual differences with methods of presenting programmed instructional materials by teaching machine and computer. Final Report, Project No. 5-1119, Learning Service and Human Learning Research Institute, Michigan State University, 1967.

Davis, R. H., Marzocco, F. N., & Denny, M. R. Interaction of individual differences with modes of presenting programmed instruction. Journal of Educational Psychology, 1970, 61, 198-204.

Della-Piana, G. An experimental evaluation of programmed learning. Journal of Educational Research, 1962, 55, 495-501.

Dietrich, C. E. The differential effects of task and reinforcement variables on the performance of emotionally disturbed children. Dissertation Abstracts, 1968, A 28, 2552.

Divesta, F. J., Sanders, N. M., Shutz, C. B., & Weener, P. D. Instructional strategies: Multivariable studies of psychological processes related to instruction. Annual report, July, 1971, Department of Educational Psychology, Pennsylvania State University, Office of Naval Research Contract No. N00014-67-A-0385-0006.

Domino, G. Differential predictions of academic achievement in conforming and independent settings. Journal of Educational Psychology, 1968, 59, 256-260.

Doty, B. A., & Doty, L. A. Programmed instructional effectiveness in relation to certain student characteristics. Journal of Educational Psychology, 1964, 55, 334-338.

Dowaliby, F. J. Teacher-centered vs. student-centered mode of college classroom instruction as related to individual differences. Unpublished Masters' thesis, University of Massachusetts, Amherst, 1971.

DuBois, P. H. Multivariate correlational analysis. New York: Harper, 1957.

Dunham, J. L., & Bunderson, V. The effect of rule instruction upon the relationship of cognitive abilities to performance in multiple-category concept learning problems. Paper presented at the annual meeting of the American Educational Research Association, New York, February, 1968.

Dunham, J. L., Guilford, J. P., & Hoepfner, R. Abilities pertaining to classes and the learning of concepts. Psychological Review, 1968, 75, 202-221.

Dunn, J. A. The accommodation of individual differences in the development of personal programs of study. Symposium presentation at the annual meeting of the American Psychological Association, Washington, D.C., September, 1969.

Edgerton, H. A. The relationship of method of instruction to trainee aptitude pattern. Technical Report, Contract Nonr 1042 (00). New York: Richardson, Bellows, Henry & Co., 1958.

Eigen, L. D. A comparison of three modes of presenting a programmed instruction sequence. Journal of Educational Research, 1962, 55, 453-460.

Eimas, P. D. Effects of overtraining and age on intradimensional and extra-dimensional shifts in children. Journal of Experimental Child Psychology, 1966, 3, 348-355.

Ekstrom, R. B. Experimental studies of homogeneous grouping: A critical review. School Review, 1961, 69, 216-226.

Entwisle, D. R., Huggins, W. H., & Phelps, F. W., Jr. Response mode in technical programs. American Educational Research Journal, 1968, 5, 403-411.

Erlander, S., & Gustavsson, J. Simultaneous confidence regions in normal regression analysis with an application to road accidents. International Statistical Institute Review, 1965, 33, 364-377.

Eysenck, H. J. Intelligence assessment: A theoretical and experimental approach. British Journal of Educational Psychology, 1967, 37, 81-98.

Farley, F. H. Individual differences and reading: Personality factors. Paper presented at the annual meeting of the American Educational Research Association, Chicago, April, 1972.

Feldman, M. E. Learning by programmed and test format at three levels of difficulty. Journal of Educational Psychology, 1965, 56, 133-139.

Ferguson, L. R., & Maccoby, E. Interpersonal correlates of differential abilities. Child Development, 1966, 37, 549-571.

Fernald, G., & Keller, H. The effect of kinesthetic factors in the development of word recognition in the case of non-readers. Journal of Educational Research, 1921, 4, 355-377.

Flanders, N. A. Teacher influence, pupil attitudes, and achievement. Cooperative Research Monographs, 1965, No. 12.

Fleishman, E. A. Human abilities and the acquisition of skill. In E. A. Bilodeau (Ed.), Acquisition of skill. New York: Academic Press, 1966.

Fleishman, E. A. Human abilities and verbal learning. In R. M. Gagné (Ed.), Learning and individual differences. Columbus, Ohio: C. E. Merrill, 1967.

Fleishman, E. A. Individual differences and motor learning. In R. M. Gagné (Ed.), Learning and individual differences. Columbus, Ohio: C. E. Merrill, 1967.

Frederikson, C. H. Abilities, transfer, and information retrieval in verbal learning. Multivariate Behavioral Research Monographs, 1969, No. 2.

Gagné, R. M. Ability differences in the learning of concepts governing directed numbers. In: Research problems in mathematics education. Cooperative Research Monographs, 1960, No. 3.

Gagné, R. M. Implications of some doctrines of mathematics teaching for research in human learning. In: Research problems in mathematics education. Cooperative Research Monographs, 1960, No. 3.

Gagné, R. M. (Ed.) Learning and individual differences. Columbus, Ohio: C. E. Merrill, 1967.

Gagné, R. M., & Gephart, W. J. (Eds.) Learning research and school subjects. Ithaca, Ill.: F. E. Peacock, 1968.

Gagné, R. M., & Gropper, G. L. Individual differences in learning from visual and verbal presentations. American Institutes for Research, Pittsburgh, Penn., 1965.

Gagné, R. M., & Paradise, N. E. Abilities and learning sets in knowledge acquisition. Psychological Monographs, 1961, 75, No. 14.

Gallegos, M. A study and comparison of experimenter pacing and student pacing of programmed instruction. Journal of Educational Research, 1968, 61, 339-342.

Gans, R. A study of critical reading comprehension in the intermediate grades. Teachers College Contributions to Education No. 811, Teachers College Bureau of Publications, Columbia University, New York, 1940.

Gifford, E. & Marston, A. R. Test anxiety, reading rate and task experience. Journal of Educational Research, 1966, 59, 303-310.

Glaser, R. Adapting the Elementary School Curriculum to Individual Performance. Paper delivered at the Invitational Conference on Testing Problems, Educational Testing Service, Princeton, N.J., October, 1967.

Goldberg, L. R. Student personality characteristics and optional college learning conditions. ORI Research Monograph 9 (1). Oregon Research Institute, University of Oregon, Eugene, Oregon, 1969.

Goldberg, M. H., Dawson, R. I., & Barrett, R. S. Comparison of programmed and conventional instruction methods. Journal of Applied Psychology, 1964, 48, 110-114.

Greenbaum, C. W. Effects of situational and personality variables on improvisation and attitude change. Journal of Personality and Social Psychology, 1966, 4, 260-269.

Grimes, J. W. & Allinsmith, W. Compulsivity, anxiety and school achievement. Merrill-Palmer Quarterly of Behavior and Development, 1961, 7, 247-271.

Guilford, J. P. Psychometric methods. (2nd ed.) New York: McGraw-Hill, 1954.

Gulliksen, H., & Wilks, S. S. Regression tests for several samples. Psychometrika, 1950, 15, 91-114.

Guttman, L. Order analysis of correlation matrices. In R.B. Cattell (Ed.), Handbook of multivariate experimental psychology. Chicago: Rand-McNally, 1966.

Guttman, L., & Schlesinger, I. M. The analysis of diagnostic effectiveness of a facet design battery of achievement and analytical ability tests. Bulletin, Israel Institute of Applied Social Research, Jerusalem, Israel, 1967.

Hamilton, N. R. Differential response to instruction designed to call upon spatial and verbal aptitudes. Technical Report No. 5, Project on Individual Differences in Learning Ability as a Function of Instructional Variables, Stanford Center for Research and Development in Teaching, Stanford University, February, 1969.

Hartley, J. Linear and skip-branching programmes: A comparison study. British Journal of Educational Psychology, 1965, 35, 320-328.

Heil, L. M., Powell, M., & Fieffer, I. Characteristics of teacher behavior related to the achievement of children in several elementary grades. Cooperative Research Project No. 353. Mimeo. Brooklyn College, Brooklyn, N. Y., 1960.

Herman, W. L., Jr., Potterfield, J. E., Dayton, C. M., & Amershek, K. G. The relationship of teacher-centered activities and pupil-centered activities to pupil achievement and interest in 18 fifth-grade social studies classes. American Educational Research Journal, 1969, 6, 227-239.

Holland, J. G. The misplaced adaptation to individual differences. Learning Research and Development Center, University of Pittsburgh, Pittsburgh, Penn., 1969.

Hopkins, K. D., Oldridge, O. A., & Williamson, M. L. An empirical comparison of pupil achievement and other variables in graded and ungraded classes. American Educational Research Journal, 1965, 2, 207-215.

Hovland, C. I., Lumsdaine, A. A., & Sheffield, F. D. Experiments on mass communication. Volume 3. Princeton: Princeton University Press, 1949.

Iwahara, S., & Tanabe, N. Anxiety level and the effect of verbal reinforcement combinations on a verbal-coding task. Japanese Psychological Research, 1963, 5, 147-152.

Jacobs, J. N., & Bollenbacher, J. K. An experimental study of the effectiveness of television versus classroom instruction in sixth grade science in the Cincinnati Public Schools, 1956-1957. Journal of Educational Research. 1959, 52, 184-189.

Jacobs, J. N., & Bollenbacher, J. K. An experimental study in teaching high school biology by television in the Cincinnati Public Schools. Science Education, 1959, 43, 399-405.

Jacobs, J. N., Bollenbacher, J. K., & Keiffer, M. Teaching seventh-grade mathematics by television to homogeneously grouped below average students. The Mathematics Teacher, 1961, 54, 551-555.

Jensen, A. R. Social class, race, and genetics: Implications for education. American Educational Research Journal, 1968, 5, 1-42.

Jensen, A. R. How much can we boost IQ and scholastic achievement? Harvard Educational Review, 1969, 39, 1-123.

Johnson, P. O., & Fay, L. The Neyman-Johnson technique, its theory and applications. Psychometrika, 1960, 15, 349-367.

Johnson, P. O., & Neyman, J. Tests of certain linear hypotheses and their applications to some educational problems. Statistical Research Memoirs, 1936, 1, 57-63.

Judd, C. H., & Buswell, G. T. Silent reading: A study of the various types. Supplementary Educational Monograph No. 23. Chicago: University of Chicago Press, 1922.

Kagan, J., Rosman, B. L., Day, D., Albert, J., & Philips, W. Information processing in the child: Significance of analytic and reflective attitudes. Psychological Monographs, 1964, 78 (1, Whole No. 578).

Karraker, R. J. Knowledge of results and incorrect recall of plausible multiple- choice alternatives. Journal of Educational Psychology, 1967, 58, 11-14.

Kastenbaum, M. A confidence interval on the abscissa of the point of intersection of two fitted linear regressions. Biometrics, 1959, 15, 323-324.

Katahn, M. Interaction of anxiety and ability in complex learning situations. Journal of Personality and Social Psychology, 1966, 3, 475-479.

Katahn, M., & Lyda, L. L. Anxiety and the learning of responses varying in initial rank in the response hierarchy. Journal of Personality, 1966, 34, 287-299.

Katz, P. A. Acquisition and retention of discrimination learning sets in lower-class pre-school children. Journal of Educational Psychology, 1967, 58, 253-258.

Keislar, E. R., & Stern, C. Differentiated instruction in problem solving for children of different mental ability levels. Journal of Educational Psychology, 1970, 61, 445-450.

Kight, H., & Sassenrath, J. M. Relation of achievement motivation and test anxiety to performance in programmed instruction. Journal of Educational Psychology, 1966, 57, 14-17.

King, F. J., Roberts, D., & Kropp, R. P. Relationship between ability measures and achievement under four methods of teaching elementary set concepts. Journal of Educational Psychology, 1969, 60 (3), 244-247

Klian, S. B. Affective correlates of academic achievement. Journal of Educational Psychology, 1969, 60, 216-221.

Koenig, K., & McKeachie, W. J. Personality and independent study. Journal of Educational Psychology, 1959, 50, 132-134.

Konstadt, N., & Forman, E. Field dependence and external directedness. Journal of Personality and Social Psychology, 1965, 1, 490-493.

Koran, M. L., McDonald, F. J., & Snow, R. E. The effects of individual differences on observational learning in the acquisition of a teaching skill. Paper presented at the annual meeting of the American Educational Research Association, Los Angeles, February, 1969.

Korchin, S. J., & Levine, S. Anxiety and verbal learning. Journal of Abnormal and Social Psychology, 1957, 54, 234-240.

Kress, G. C., Jr., & Gropper, G. L. A comparison of two strategies for individualizing fixed-paced programmed instruction. American Educational Research Journal, 1966, 3, 273-280.

Kropp, R. P., Nelson, W. H., & King, F. J. Identification and definition of subject matter content variables related to human aptitudes. Final Report, Cooperative Research Project No. 2914, U.S. Office of Education, Bureau of Research, 1967.

Krumboltz, J. D., & Yabroff, W. W. The comparative effects of inductive and deductive sequences in programmed instruction. American Educational Research Journal, 1965, 2, 223-235.

Lambert, P., Miller, D. M., & Wiley, D. E. Experimental folklore and experimentation: The study of programmed learning in the Wauwatosa public schools. Journal of Educational Research, 1962, 55, 485-494.

Lefcourt, H. L. Effects of cue explication upon persons maintaining external control expectancies. Journal of Personality and Social Psychology, 1967, 5 (3), 372-378.

Leith, G. O., & Bossett, R. Mode of learning and personality. Research report on programmed learning, No. 14. University of Birmingham School of Education, 1967.

Lemke, E. A., Klausmeier, H. J., & Harris, C. W. Relationship of selected cognitive abilities to concept attainment and information processing. Journal of Educational Psychology, 1967, 58, 27-35.

Lemke, E. A., Randle, K., & Robertshaw, C. S. Effects of degree of initial acquisition, group size, and general mental ability on concept learning and transfer. Journal of Educational Psychology, 1969, 60, 75-78.

Levin, G. R., & Baker, B. C. Item scrambling in a self-instructional program. Journal of Educational Psychology, 1963, 54, 138-143.

Lord, F. M. Elementary models for measuring change. In C. W. Harris (Ed.), Problems in measuring change. Madison, Wisc.: University of Wisconsin Press, 1963.

Lott, A. J., & Lott, B. E. Group cohesiveness and individual learning. Journal of Educational Psychology, 1966, 57, 61-73.

Lubin, A. The interpretation of significant interaction. Educational and Psychological Measurement, 1961, 21, 807-817.

Lublin, S. C. Reinforcement schedules, scholastic aptitude, autonomy need, and achievement in a programmed course. Journal of Educational Psychology, 1965, 56, 295-302.

Lucow, W. H. An experiment with the Cuisenaire method in grade three. American Educational Research Journal, 1964, 1, 159-167.

Madansky, A. The fitting of straight lines when both variables are subject to error. Journal of the American Statistical Association, 1959, 54, 173-205.

Maier, M. H., & Jacobs, P. I. Programmed learning--some recommendations and results. Bulletin of the National Association of Secondary School Principals, 1964, 48, 242-255.

Maier, M. & Jacobs, P. I. The effects of variations in a self-instructional program on instructional outcomes. Psychological Reports, 1966, 18, 539-546.

Manley, M. B. A factor analytic study of three types of concept attainment tasks. Research Bulletin 65-31, Educational Testing Service, Princeton, N. J., 1965.

Marshall, H. H. Learning as a function of task interest, reinforcement, and social class variables. Journal of Educational Psychology, 1969, 60, 133-137.

McCandless, B. R., & Castenada, A. Anxiety in children, school intelligence, and achievement. Child Development, 1956, 27, 379-382.

McKeachie, W. J. Students, groups, and teaching methods. American Psychologist, 1958, 13, 580-584.

McKeachie, W. J. Motivation, teaching methods, and college learning. In M. R. Jones (Ed.), Nebraska symposium on motivation, 1961.

McKeachie, W. J., Lin, Y., Milholland, J., & Isaacson, R. Student affiliation motives, teacher warmth, and academic achievement. Journal of Personality and Social Psychology, 1966, 4, 457-461.

McLaughlin, R. J., & Eysenck, H. J. Extroversion, neuroticism, and paired-associates learning. Journal of Experimental Research in Personality, 1967, 2, 128-132.

McNeil, J. D. Programmed instruction versus usual classroom procedures in teaching boys to read. American Educational Research Journal, 1964, 1, 113-119.

McNeil, J. D., & Keislar, E. R. Value of the oral response in beginning reading: An experimental study using programmed instruction. British Journal of Educational Psychology, 1963, 33, 162-168.

McNemar, Q. On growth measurement. Educational and Psychological Measurement, 1958, 18, 47-55.

Merrill, M. D., & Stolurow, L. M. Hierarchical preview vs. problem oriented review in learning an imaginary science. American Educational Research Journal, 1966, 3, 251-261.

Miller, K. M. Einstellung rigidity, intelligence and teaching methods. British Journal of Educational Psychology, 1957, 27, 127-134.

Miller, R. G., Jr. Simultaneous statistical inference. New York: McGraw-Hill, 1966.

Mills, R. E. An evaluation of techniques for teaching word recognition. Elementary School Journal, 1956, 56, 221-225.

Mills, R. E. The teaching of word recognition. Fort Lauderdale, Florida: The Mills Center, 1964.

Mitchell, J. V. Education's challenge to psychology: The prediction of behavior from person-environment interactions. Review of Educational Research, 1969, 39, 695-701.

Nagel, T. S. Effects on achievement and attitudes of two writing styles used with programmed materials. Paper presented at the annual meeting of the American Educational Research Association, Chicago, February, 1968.

Nanda, H. Factor analytic techniques for inter-battery comparison and their application to some psychometric problems. Unpublished doctoral dissertation, Stanford University, 1967.

Nazarian, J. A comparative study of the achievement of college students of different levels of mathematical aptitude using closed-circuit television and lecture-recitation method of instruction. Dissertation Abstracts, 1967, A28, 1215.

Neale, J. M., & Katahn, M. Anxiety, choice and stimulus uncertainty. Journal of Personality, 1968, 36, 235-245.

Novick, M. R. Bayesian methods in psychological testing. Research Bulletin 69-31, Educational Testing Service, Princeton, N.J., 1969.

Novick, M. R., & Jackson, P. H. Bayesian guidance technology. Research Bulletin 69-83, Educational Testing Service, Princeton, N.J., 1969.

Nuthall, G. An experimental comparison of alternative strategies for teaching concepts. American Educational Research Journal, 1968, 5, 561-584.

O'Connor, P., Atkinson, J. W., & Horner, M. Motivational implications of ability grouping in school. In J. W. Atkinson & N. T. Feather, (Eds.), A theory of achievement motivation. New York: Wiley, 1966.

Ogletee, E. J. Ability grouping: Its effects on attitudes. Journal of Social Psychology, 1970, 82, 137-138.

Olivier, W. P. Program sequence by ability interaction in learning a hierarchical task by computer-assisted instruction. Unpublished doctoral dissertation, University of Texas, Austin, 1968.

O'Reilly, R. P. Instructional mode, anxiety, exhibitionism, and achievement. Paper presented at the annual meeting of the Educational Research Association of New York State, Albany, New York, November, 1966.

Orton, K. D., McKay, B. E., & Rainey, D. The effect of method of instruction on retention and transfer for different levels of ability. School Review, 1964, 72, 451-561.

Osburn, H. G., & Melton, R. S. Prediction of proficiency in a modern and traditional course in beginning algebra. Educational and Psychological Measurement, 1963, 23, 277-287.

Osler, S. F., & Trautman, G. E. Concept attainment: II. Effect of stimulus complexity upon concept attainment at two levels of intelligence. Journal of Experimental Psychology, 1961, 62, 9-13.

Patton, J. A. A study of the effects of student acceptance of responsibility and motivation on course behavior. Unpublished doctoral dissertation, University of Michigan, 1955.

Payne, D. A., Krathwohl, D. R., & Gordon, J. The effect of sequence in programmed instruction. American Educational Research Journal, 1967, 4. 123-132.

Pervin, L. A. Performance and satisfaction as a function of individual-environment fit. Psychological Bulletin, 1968, 69, 56-68.

Potthoff, R. F. On the Johnson-Neyman technique and some extensions thereof. Psychometrika, 1964, 29, 241-256.

Pyatte, J. A. Some effects of unit structures on achievement and transfer. American Educational Research Journal, 1969, 6, 241-260.

Rapier, J. L. Learning abilities of normal and retarded children as a function of social class. Journal of Educational Psychology, 1968, 59, 102-110.

Ray, W. E. Pupil discovery vs. direct instruction. Journal of Experimental Education, 1961, 29, 271-280.

Reed, J. E., & Hayman, J. L., Jr. An experiment involving use of English 2600, an automated instruction text. Journal of Educational Research, 1962, 55, 476-484.

Reynolds, P. D. Certain effects of the expectation to transmit on concept attainment. Journal of Educational Psychology, 1968, 59, 139-146.

Rim, Y. Extraversion, neuroticism and the effect of praise or blame. British Journal of Educational Psychology, 1965, 35, 381-384.

Ripple, R. E., Millman, J. & Glock, M. D. Learner characteristics and instructional mode: A search for disordinal interactions. Journal of Educational Psychology, 1969, 60, 113-120.

Rosemier, R. A. Effectiveness of forewarning about errors in response-selective learning. Journal of Educational Psychology, 1965, 56, 309-314.

Rosenthal, R., & Jacobson, L. Pygmalion in the classroom: Teacher expectation and pupils' intellectual development. New York: Holt, Rinehart & Winston, 1968.

Rulon, P. J., Tiedeman, D. V., Tatsuoka, M. M., & Langmuir, C. R. Multivariate statistics for personnel classification. New York: Wiley, 1967.

Ryan, F. L. Advance organizers and test anxiety in programmed social studies instruction. California Journal of Educational Research, 1968, 19, 67-76.

Ryan, W. D., & Lakie, W. L. Competitive and noncompetitive performance in relation to achievement motive and manifest anxiety. Journal of Personality and Social Psychology, 1965, 1, 342-345.

Salomon, G. Cue-attendance and hypothesis generation as two procedures of training for the generation of subjective response uncertainty. Unpublished Preliminary Draft, Indiana University, Undated.

Salomon, G. Interaction of communication-medium and two procedures of training for subjective response uncertainty of teachers. Unpublished doctoral dissertation, Stanford University, 1968.

Salomon, G. Heuristic models for the generation of aptitude-treatment interaction hypotheses. Paper presented at the meeting of the American Educational Research Association, New York, February, 1971.

Salomon, G. Internalization of filmic schematic operations in relation to individual differences. Unpublished manuscript, The Hebrew University, Jerusalem, Israel, September, 1971.

Samuels, S. J. Attentional process in reading: The effect of pictures on the acquisition of reading responses. Journal of Educational Psychology, 1967, 58, 337-342.

Sassenrath, J. M., & Garverick, C. M. Effects of differential feedback from examinations on retention and transfer. Journal of Educational Psychology, 1965, 56, 259-263.

Scharf, E. S. A study of the effects of partial reinforcement on behavior in a programmed learning situation. In R. Glaser & J. I. Taber (Eds.), Investigations of the characteristics of programmed learning sequences. Department of Psychology, University of Pittsburgh, Pittsburgh, Pa., 1961.

Seibert, W. F., & Snow, R. E. Studies in cine-psychometry I: Preliminary factor analysis of visual cognition and memory. USOE, Final Report. Grant No. 7-12-0280-184, Audio Visual Center, Purdue University, Lafayette, Ind., 1965.

Seibert, W. F., Reid, J. C., & Snow, R. E. Studies in cine-psychometry II: Continued factoring of audio and visual cognition and memory. U.S.O.E. Final Report. Grant No. 7-24-0280-257, Audio Visual Center, Purdue University, Lafayette, Ind., 1967.

Sember, I. J., & Iscoe, I. Comparative and developmental study of the learning abilities of Negro and white children under four conditions. Journal of Educational Psychology, 1963, 54, 38-54.

Shaver, J. P., & Oliver, D. W. The effect of student characteristic-teaching method interactions in learning to think critically. Paper presented at the annual meeting of the American Educational Research Association, Chicago, February, 1968.

Shay, C. B. Relationship of intelligence to step size on a teaching machine program. Journal of Educational Psychology, 1961, 52, 98-103.

Shepard, R. N. A simplicial design for the analysis of correlational learning data. Multivariate Behavioral Research, 1967, 2, 83-87.

Shepard, R. N., & Carroll, J. D. Parametric representation of nonlinear data structures. In P. R. Krishniah (Ed.), Multivariate analysis. New York: Academic Press, 1966.

Showel, M. Development of two automated programs for teaching military justice to men of various aptitude levels. Technical Report 68-8. Human Resources Research Office, George Washington University, June, 1968.

Siegel, L. & Siegel, L. C. Educational set: A determinant of acquisition. Journal of Educational Psychology, 1965, 56, 1-12.

Silberman, H. F., & Coulson, J. E. Development and evaluation of self-instructional materials for underachieving and overachieving students. Audio Visual Communications Review, 1963, 11, 168-170.

Skinner, B. F. The science of learning and the art of teaching. Harvard Educational Review, 1954, 25, 86-97.

Skinner, B. F. Teaching science in high school - what is wrong? Science, 1968, 159, 704-710.

Smillie, K. W. An introduction to regression and correlation. New York: Academic Press, 1966.

Smillie, K. W. Aptitude - instructional treatment interaction: Selected findings and hypotheses. Paper presented at the annual meeting of the American Educational Research Association, Los Angeles, February, 1969.

Smith, L. M. Programmed learning in elementary school: An experimental study of relationships between mental abilities and performance. Technical Report, U.S.O.E. Title VII Project 71151.01, Training Research Laboratory, University of Illinois, 1962.

Smith, D. E. P. Fit teaching methods to personality structure. The High School Journal, 1955, 39, 167-171.

Smith, D. E. P., Wood, R. L., Downer, J. W., & Raygor, A. L. Reading improvement as a function of student personality and teaching method. Journal of Educational Psychology, 1956, 47, 47-59.

Smock, C. D. Perceptual rigidity and closure phenomenon as a function of manifest anxiety in children. Child Development, 1958, 29, 237-247.

Snow, R. E. Review of Rosenthal, R., & Jacobson, L. Pygmalion in the classroom: Teacher expectation and pupils' intellectual development. Contemporary Psychology, 1969, 14, 197-199.

Snow, R. E., & Salomon, G. Aptitudes and instructional media. Communication Review, 1968, 16, 341-357.

Snow, R. E., Tiffin, J., & Seibert, W. F. Individual differences and instructional film effects. Journal of Educational Psychology, 1965, 56, 315-326.

Stake, R. E. Learning parameters, aptitudes, and achievements. Technical Report. Educational Testing Service, Princeton, N. J., June, 1958.

Stanley, J. C. On improving certain aspects of educational experimentation. In J. C. Stanley (Ed.), Improving experimental design in statistical analysis. Chicago, Ill.: Rand-McNally, 1967.

Steffens, F. E. On comparing two simple linear regression lines. South African Statistical Journal, 1968, 2, 33-53.

Stern, C. Acquisition of problem-solving strategies in young children and its relation to verbalization. Journal of Educational Psychology, 1967, 58, 245-252.

Stern, C., & Keislar, E. R. Acquisition of problem solving strategies by young children and its relation to mental age. American Educational Research Journal, 1967, 4, 1-12.

Stolurow, L. M. Social impact of programmed instruction: Aptitudes and abilities revisited. In J. P. Dececco (Ed.), Educational technology. New York: Holt, Rinehart & Winston, 1964.

Stolurow, L. M. Programmed instruction and teaching machines. In F. H. Rossi & B. J. Biddle (Eds.), The new media and education. Chicago: Aldine, 1966.

Stuart, I. R. Perceptual style and reading ability: Implications for an instructional approach. Perceptual and Motor Skills, 1967, 24, 135-138.

Tagatz, G. E., Otto, W., Klausmeier, H. J., Goodwin, W. L., & Cook, D. M. Effect of three methods of instruction upon the handwriting performance of third and fourth graders. American Educational Research Journal, 1968, 5, 81-90.

Tallmadge, G. K. Relationships between training methods and learner characteristics. Journal of Educational Psychology, 1968, 59, 32-36.

Tallmadge, G. K., & Shearer, J. W. Relationships among learning styles, instructional methods, and the nature of learning experiences. Journal of Educational Psychology, 1969, 60, 222-230.

Tallmadge, G. K., Shearer,J. W., & Greenberg, A. Study of training equipment and individual differences: The effects of subject matter variances. Technical Report: NAVTRADEVCEN 67-C-0114-1. American Institutes for Research, 1968, Palo Alto, California.

Tanner, R. T. Expository-deductive versus discovery-inductive programming of physical science principles. Unpublished doctoral dissertation, Stanford University, 1968.

Thelan, H. A. Classroom grouping for teachability. New York: Wiley, 1967.

Thompson, G. G., & Hunnicutt, C. W. The effect of repeated praise or blame on the work achievement of "introverts" and "extroverts." Journal of Educational Psychology, 1944, 35, 257-266.

Tiedeman, D. V., & Cogan, M. New horizons in educational research. Phi Delta Kappa, 1958, 39, 286-291.

Tobias, S. Effects of attitudes to programmed instruction and other media on achievement from programmed materials. Audio Visual Communications Review, 1969, 3, 299-306.

Tobias, S. Research strategy in the effect of individual differences on achievement from programmed instruction. Paper presented at the annual meeting of the American Psychological Association, Washington, D. C., September, 1969.

Traub, R. E. Importance of problem heterogeneity to programmed instruction. Journal of Educational Psychology, 1966, 57, 54-60.

Travers, R. M. W. Learning measures and psychometric variables. In R. M. Gagné (Ed.), Learning and individual differences. Columbus, Ohio: C. E. Merrill, 1967.

Trown, E. A. Some evidence on interaction between teaching strategy and personality. British Journal of Educational Psychology, 1970, 40, 209-211.

Truog, A. L., & Farley, F. H. Anxiety, instructional pacing, and the recall of fact and inference in prose. Paper presented at the annual meeting of the American Educational Research Association, Chicago, April, 1972.

Tuckman, B. W. A study of the effectiveness of directive vs. non-directive vocational teachers as a function of student characteristics and course format. Final Report, USOE Grant No. OEG-1-7-062300-0345, September, 1968.

Van De Riet, Hani. Effects of praise and reproof on paired-associate learning in educationally retarded children. Journal of Educational Psychology, 1964, 55, 139-143.

Walberg, H. J. Class size and the social environment of learning. Human Relations, 1969, 22, 465-475.

Walberg, H. J. A model for research on instruction. School Review, 1970, 78, 185-200.

Walberg, H. J. Social environment as a mediator of classroom learning. Journal of Educational Psychology, 1969, 60, 443-448.

Walberg, H. Models for optimizing and individualizing school learning. Interchange, 1971, 2(3), 15-27.

Ward, J. N. Group-study versus lecture-demonstration method in physical science instruction for general education college students. Journal of Experimental Education, 1956, 24, 197-210.

Williams, J. Comparison of several response modes in a review program. Journal of Educational Psychology, 1963, 54, 253-260.

Williams, J. P. Effectiveness of constructed-response and multiple-choice programming modes as a function of test mode. Journal of Educational Psychology, 1965, 56, 111-117.

Williams, J. P., & Levy, E. I. Retention of introductory and review programs as a function of response mode. American Educational Research Journal, 1964, 1, 211-218.

Wilson, J. W., & Carry, R. L. Homogeneity of regression--its rationale, computation and use. American Educational Research Journal, 1969, 6, 80-90.

Wispé, L. G. Evaluating section teaching methods in the introductory course. Journal of Educational Research, 1951, 45, 161-186.

Wittrock, M. C. Response mode in the programming of kinetic molecular theory concepts. Journal of Educational Psychology, 1963, 54, 89-93.

Wittrock, M. C. Set to learn and proactive inhibition. Journal of Educational Research, 1963, 57, 72-75.

Wolff, J. L. Effects of verbalization and pretraining on concept attainment by children in two mediation categories. Journal of Educational Psychology, 1967, 58, 19-27.

Woodruff, A. B., Shimabukuro, S., & Frey, S. H. Methods of programmed instruction related to student characteristics. DeKalb, Illinois: Northern Illinois University, 1965.

Zeaman, D., & House, B. J. The relation of I.Q. and learning. In R. M. Gagné (Ed.), Learning and individual differences. Columbus, Ohio: C. E. Merrill, 1967.

GPO 827-795-5

IV

INDIVIDUAL DIFFERENCES AND LEARNING (NON-ATI RESEARCH)

Alderman, R. Reminicence effects on inter- and intra-individual differences in pursuit motor performance. The Research Quarterly, 1968, 39, 423-427.

Allison, R. B. Learning parameters and human abilities. Technical Report, Educational Testing Service, Princeton, New Jersey, 1960.

Atkinson, J. W., & Raphelson, A. C. Individual differences in motivation and behavior in particular situations. Journal of Personality, 1956, 24, 349-363.

Baker, R. W., & Modell, T. O. A continued investigation of susceptibility to distraction in academically underachieving and achieving male college students. Journal of Educational Psychology, 1965, 56, 254-258.

Bass, A. R., Hatton, G. I., McHate, T. J., & Stolurow, L. M. Originality, intelligence and performance on problem-solving tasks. Technical Report No. 2, 1962. Group and organizational factors influencing creativity. ONR.NONR 1834(36). Originated in Training Research Laboratory, Department of Psychology, University of Illinois.

Bee, H. L. Individual differences in susceptibility to distraction. Perceptual and Motor Skills, 1966, 23, 821-822.

Berdie, R. F. Perhaps mode of response does not explain intra-individual variability. Psychological Reports, 1968, 23, 40-42.

Berkowitz, G., & Farley, F. H. Reading readiness and early linguistic skills as a function of individual differences in the orienting response. Working Paper No. 94, Wisconsin Research and Development Center for Cognitive Learning, University of Wisconsin, Madison, 1972.

Botwinick, J., & Thompson, L. W. A research note on individual differences in reaction time in relation to age. The Journal of Genetic Psychology, 1968, 112, 73-75.

Bunderson, C. V. Transfer of mental abilities at different stages of practice in the solution of concept problems. Research Bulletin, RB-67-20. Educational Testing Service, and Office of Naval Research Technical Report, 1967. Originally a doctoral dissertation, Princeton University, 1965.

Burns, Z. H. Practice, variability and motivation. Journal of Educational Research, 1936-1937, 30, 403-420.

Bush, R. R., & Lovejoy, E. P. Learning to criterion: A study of individual differences. Mimeo. Stanford Colloquium, April 28, 1965.

Calvin, A. D., Hoffman, F. K., & Harden, E. L. The effect of intelligence and social atmosphere on group problem solving behavior. Journal of Social Psychology, 1957, 45, 61-74.

Campbell, D. C. Teacher-pupil personal value discrepancy as a prediction of course achievement. Mimeo. Harvard University, 1967.

Campbell, V., Bivens, L., & Terry, D. Effects of mathematical ability pretraining and interest on self-direction in programmed instruction. Palo Alto, California: American Institute for Research, AIR D10, 1963.

Carron, A. V., & Leavitt, J. L. Individual differences in two motor learning tasks under massed practice. Perceptual and Motor Skills, 1968, 27, 499-504.

Carroll, J. B. The prediction of success in intensive foreign language training. In R. Glaser (Ed.), Training research and education. Pittsburgh: University of Pittsburgh Press, 1962.

Carroll, J. B. Programmed instruction and student ability. Journal of Programmed Instruction, 1963, 2, 7-11.

Cooley, W., & Glaser, R. The computer and individualized instruction. Science, 1969, 166, 574-585.

Covington, M. The effect of anxiety on various types of ideational output measures in complex problem-solving. Paper read at annual meeting of the Western Psychological Association, San Francisco, 1967.

Dallenbach, K. M., Bitterman, M. E., & Newman, E. B. Studies in creativity: Individual differences in the storing and utilization of information. The American Journal of Psychology, 1967, 80, 492-519.

deHirsh, K., Jansky, J., & Langford, W. Predicting reading failure. New York: Harper & Row, 1966.

Dick, W., & Seguin, E. L. Experiment VI: Effects of personality-pairing on the performance of students in a programmed course in English grammar. Comparative research on methods and media for presenting programmed course in math and English. Carpenter and Greenhill, Pennsylvania State University, 1963.

Duncanson, J. P. Intelligence and the ability to learn. Research Bulletin, RB-64-29, Educational Testing Service, Princeton, New Jersey, and Office of Naval Research Technical Report, 1964. (See also Learning and measured abilities. Journal of Educational Psychology, 1966, 57, 220-229.)

Duncanson, J. P. Learning and measured abilities. Journal of Educational Psychology, 1966, 57, 220-229.

Dunham, J. L., & Bunderson, V. The effect of rule instruction upon the relationship of cognitive abilities to performance in multiple-category concept learning problems. Paper presented at the annual meeting of the American Educational Research Association, New York, February, 1968.

Dunham, J. L., Guilford, J. P., & Hoepfner, R. Abilities pertaining to classes and the learning of concepts. Report No. 39, Psychological Laboratory, University of Southern California, 1966. (See also Psychological Review, 1968, 75, 206-221.)

Earhard, M. Individual differences in subjective organization: Short-term memory. Psychonomic Science, 1970, 18, 220-221.

Eigen, L. D., & Feldhusan, J. F. Interrelationship among attitude, achievement, reading, intelligence and transfer variables in programmed instruction. In J. P. DeCecco (Ed.), Educational technology, New York: Holt, Rinehart & Winston, 1964.

Eimas, P. D. Effects of overtraining and age on intradimensional and extradimensional shifts in children. Journal of Experimental Child Psychology, 1966, 3, 348-355.

Elithorn, A., & Barnett, T. J. Apparent individual differences in channel capacity. Acta Psychologica, 1967, 27, 75-83.

Elkind, D., Koegler, R. R., & Go, E. Field independence and concept formation. Perceptual and Motor Skills, 1963, 17, 303-386.

Farber, I. E., & Spence, K. W. Complex learning and conditioning as a function of anxiety. Journal of Experimental Psychology, 1953, 45, 120-125.

Farley, F. H. Individual differences in solution-time in error-free problem solving. British Journal of Social and Clinical Psychology, 1966, 5, 306-309.

Farley, F. H. Individual differences in reminiscence and performance. Paper presented at the annual meeting of the American Educational Research Association, Los Angeles, February, 1969.

Farley, F. H. Retention and individual differences in arousal. Symposium presentation, 19th International Congress of Psychology, London, July, 1969.

Farley, F. H. Short- and long-term retention in the paired-associate and connected discourse learning of children and adults as a function of individual differences in intrinsic arousal. Paper presented at the annual meeting of the Midwest Psychological Association, Cincinnati, April, 1970.

Farley, F. H. Arousal and memory. Theoretical Paper, Wisconsin Research and Development Center for Cognitive Learning, University of Wisconsin, Madison, 1972.

Farley, F. H., & Eischens, R. Children's processing of prose: The effects of question arousal, text complexity and learner strata on short- and long-term retention. Technical Report No. 201, Wisconsin Research and Development Center for Cognitive Learning, University of Wisconsin, Madison, 1972.

Farley, F. H., & Manske, M. E. The relationship of individual differences in the orienting response to complex learning in kindergarteners. Technical Report No. 132, Wisconsin Research and Development Center for Cognitive Learning, University of Wisconsin, Madison, Wisconsin, 1970.

Farley, F. H., & Mealiea, W. L. Individual differences in the Zeigarnik effect. Proceedings of the 79th Annual Meeting, American Psychological Association, 1971, 543-544.

Farley, F. H., Osborne, J. W., & Severson, H. H. The reliability and validity of salivation as a measure of individual differences in intrinsic arousal. Working Paper No. 51, Wisconsin Research and Development Center for Cognitive Learning, University of Wisconsin, Madison, 1971.

Farley, F. H., & Truog, A. L. Individual differences in reading comprehension. Journal of Reading Behavior, 1971, 3 (1), 29-35.

Flanders, N. A. Teacher influence, pupil attitudes, and achievement. Cooperative Research Monographs, 1965, No. 12. Ann Arbor, Mich.: University of Michigan, 1965.

Flavel, J. H., Beach, D. H., & Chinsky, J. M. Spontaneous verbal rehearsal in a memory task as a function of age. Child Development, 1966, 37, 283-299.

Fleishman, E. A. Human abilities and the acquisition of skill. In E. A. Bilodeau (Ed.), Acquisition of skill. New York: Academic Press, 1966.

Fleishman, E. A., & Hempel, W. E. Changes in factor structure of a complex psychomotor test as a function of practice. Psychometrika, 1954, 19, 239-252.

Fleishman, E. A., & Hempel, W. E. The relation between abilities and improvement with practice in a visual discrimination reaction task. Journal of Experimental Psychology, 1955, 49, 301-312.

Frederiksen, C. H. Abilities, transfer, and information retrieval in verbal learning. Multivariate Behavioral Research Monographs, 1969, No. 2.

Gagné, R. M. Ability differences in the learning of concepts governing directed numbers. In Research problems in mathematics education. Cooperative Research Monographs, 1960, No. 3, 112-113.

Gagné, R. M., & Brown, L. T. Some factors in the programming of conceptual learning. Journal of Experimental Psychology, 1961, 62, 313-321.

Gagné, R. M., & Paradise, N. E. Abilities and learning sets in knowledge acquisition. Psychological Monographs, 1961, 75, No. 14.

Games, P. A. A factorial analysis of verbal learning tasks. Journal of Psychology, 1962, 63, 1-11.

Gardner, R. W. Cognitive styles in categorizing behavior. Journal of Personality, 1953, 22, 214-233.

Gaudry, E., & Speilberger, C. D. Anxiety and intelligence in paired-associate learning. Journal of Educational Psychology, 1970, 61, 386-391.

Gifford, E., & Marston, A. R. Test anxiety, reading rate and task experience. Journal of Educational Research, 1966, 59, 303-310.

Grimes, T. W., & Allinsmith, W. Compulsivity, anxiety, and school achievement. Merrill-Palmer Quarterly, 1961, 7, 248-271.

Guilford, J. P., Hoepfner, R., & Peterson, H. Predicting achievement in ninth-grade mathematics from measures of intellectual-aptitude factors. Educational and Psychological Measurement, 1965, 25, 659-682.

Harris, E. L., Lemke, E. A., & Rumery, R. E. Generalized learning curves and their ability and personality correlates. Unpublished manuscript, Dept. of Psychology, Illinois State University, Normal, 1971.

Hills, J. R. Factor-analyzed abilities and success in college mathematics. Educational and Psychological Measurement, 1957, 17, 615-622.

Hoepfner, R., & Guilford, J. P. Figural, symbolic, and semantic factors of creative potential in ninth-grade students. Report No. 35, Psychological Laboratory, University of Southern California, 1965.

Hoepfner, R., Guilford, J. P., & Merrifield, P. R. A factor analysis of the symbolic-evaluation abilities. Report No. 33, Psychological Laboratory, University of Southern California, 1964.

Hohn, R. L. Mediational styles; An individual difference variable in children's learning. Psychonomic Science, 1970, 18, 348-349.

Iwahara, S., & Tanabe, N. Anxiety level and the effect of verbal reinforcement combinations on a verbal-coding task. Japanese Psychological Research, 1963, 5, 147-152.

Jacobson, L., Elenewski, J., Lordahl, D., & Liroff, J. H. Role of creativity and intelligence in conceptualization. Journal of Personality and Social Psychology, 1968, 10, 431-436.

Jensen, A. R. Learning abilities in Mexican-American and Anglo-American children. California Journal of Educational Research, 1961, 12, 147-159.

Jensen, R. Learning ability in retarded, average and gifted children. Merrill-Palmer Quarterly of Behavior and Development, 1963, 9, 124-140.

Jensen, A. R. Individual differences in concept learning. In H. Klausmeier & C. Harris (Eds.), Analysis of concept learning. New York: Academic Press, 1966.

Jensen, A. R. Social class and perceptual learning. Mental Hygiene, 1966, 50, 226-239.

Jensen, A. R. Varieties of individual differences in learning. In R. M. Gagné (Ed.), Learning and individual differences. Columbus, Ohio: C. E. Merrill, 1967.

Jensen. A. R. Social class and verbal learning. In M. Deutsch, A. R. Jensen, & I. Katz (Eds.), Social class, race and psychological development. New York: Holt, Rinehart & Winston, 1967.

Jensen, R. Experimental and factor analyses of individual differences in digit span. Abstract of paper presented at annual meeting of the Western Psychological Association, San Diego, March, 1968.

Jensen, R. Patterns of mental ability and socioeconomic status. Paper presented at the annual meeting of the National Academy of Sciences, Washington D. C., April, 1968.

Jensen, A. R. Social class, race, and genetics: Implications for education. American Educational Research Journal, 1968, 5, 1-42.

Jensen, A. R. How much can we boost I. Q. and scholastic achievement? Harvard Educational Review, 1969, 39, 1-123.

Kagan, J. Impulsive and reflective children: Significance of conceptual tempo. In J. D. Krumboltz (Ed.), Learning and the educational process. Chicago: Rand-McNally, 1965.

Kagan, J. Reflection-impulsivity and reading ability in primary grade children. Child Development, 1965, 36, 3.

Kagan, J., Rosman, B. L., Day, D., Albert, J., & Philips, W. Information processing in the child: Significance of analytic and reflective attitudes. Psychological Monographs, 1964, 78 (1, Whole No. 578).

Katahn, M. Interaction of anxiety and ability in complex learning situations. Journal of Personality and Social Psychology, 1966, 3, 475-479.

Katahn, M., & Lyda, L. L. Anxiety and the learning of responses varying in initial rank in the response hierarchy. Journal of Personality, 1966, 34, 287-299.

Kennedy, R. S. Individual differences in auditory vigilance performance in the band-pass ability (B-PA) test: Some theoretical considerations. Paper presented at the annual meeting of the Human Factors Society, October, 1970.

Kight, H., & Sassenrath, J. M. Relation of achievement motivation and test anxiety to performance in programmed instruction. Journal of Educational Psychology, 1966, 57, 14-17.

Kjeldergaard, P. M. Predicting paired-associate learning speed. Psychological Reports, 1962, 11, 353-354.

Koenig, K., & McKeachie, W. J. Personality and independent study. Journal of Educational Psychology, 1959, 50, 132-134.

Korchin, S. J., & Levine, S. Anxiety and verbal learning. Journal of Abnormal and Social Psychology, 1957, 54.

Kress, G. C., & Gropper, G. L. Individual differences in learning from self-paced programmed instruction. American Institutes for Research, Pittsburgh, Pennsylvania, 1964.

Lacey, J. I. Individual differences in somatic response patterns. Journal of Comparative and Physiological Psychology, 1950, 43, 338-350.

Lahaderne, H. M. Attitudinal and intellectual correlates of attention: A study of four sixth grade classrooms. Journal of Educational Psychology, 1968, 59, 320-324.

Leith, G. O. M. Age changes in the relationship between anxiety and achievement. Unpublished manuscript, University of Sussex, 1970.

Lemke, E. A., Klausmeier, H. J., & Harris, C. W. Relationship of selected cognitive abilities to concept attainment and information processing. Journal of Educational Psychology, 1967, 58, 27-35.

Lemke, E. A., Randle, K., & Robertshaw, C. S. Effects of degree of initial acquisition, group size, and general mental ability on concept learning and transfer. Journal of Educational Psychology, 1969, 60, 75-78.

Levin, J. R., Rohwer, W. D., & Cleary, T. A. Individual differences in the learning of verbally and pictorially presented paired associates. American Educational Research Journal, 1971, 8, 11-26.

Lewis, D., McAllister, D. E., & Bechtoldt, H. P. Correlational study of performance during successive phases of practice on the standard and reversed tasks on the Sam complex coordinator. Journal of Psychology, 1953, 36, 111-126.

Lewis, V. C. Prediction of academic performance from adolescent attitude-pass organizations. Journal of Educational Research, 1970, 63, 204-208.

Mandler, G. Organized recall: Individual functions. Psychonomic Science, 1968, 13, 235-236.

Mandler, G., & Sarason, S. R. A study of anxiety and learning. Journal of Abnormal and Social Psychology, 1952, 47, 166-173.

Manley, M. B. A factor analytic study of three types of concept attainment tasks. Research Bulletin 65-31, Educational Testing Service, Princeton, N. J., 1965.

McCall, R. B., & Kagan, J. Individual differences in the infant's distribution of attention to stimulus discrepance. Developmental Psychology, 1969, 2, 90-98.

McCandless, B. R., & Castenada, A. Anxiety in children, school intelligence, and achievement. Child Development, 1956, 27, 379-382.

McKeachie, W. J. Anxiety in the college classroom. Journal of Educational Research, 1951, 45, 153-160.

McKeachie, W. J., Lin, Y., Milholland, J., & Isaacson, R. Student affiliation motives, teacher warmth, and academic achievement. Journal of Personality and Social Psychology, 1966, 4, 457-461.

McLaughlin, R. J., & Eysenck, H. J. Extroversion, neuroticism, and paired-associate learning. Journal of Experimental Research in Personality, 1967, 2, 128-132.

Meyers, C. E., Dingman, H. F., & Orpet, R. E. Four ability-factor hypotheses at three preliterate levels in normal and retarded children. Monograph of the Society for Research in Child Development, 1964, 29, (5).

Noble, C. E. Ability vs. practice in paired-associate learning. Journal of Psychology, 1959, 47, 331-335.

Noble, C. E., Noble, J. L, & Alcock, W. T. Prediction of individual differences in human trial-and-error learning. Perceptual and Motor Skills, 1958, 8, 151-172.

Osborne, J. W., & Farley, F. H. Short- and long-term retention as a function of individual differences in arousal. Technical Report No. 139, Wisconsin Research and Development Center for Cognitive Learning, University of Wisconsin, Madison, 1971.

Osburn, H. G., & Melton, R. F. Prediction of proficiency in a modern and traditional course in beginning algebra. Educational and Psychological Measurement, 1963, 23, 277-288.

Osler, S. F. The cognitive status of the disadvantaged child. Paper presented at the annual meeting of the American Psychological Association, San Francisco, September, 1968.

Osler, S. F., & Fivel, M. W. Concept attainment: I. The role of age and intelligence in concept attainment by induction. Journal of Experimental Psychology, 1961, 62, 1-13.

Osterweil, J., & Fiske, D. W. Intra-individual variability in sentence completion responses. Journal of Abnormal and Social Psychology, 1956, 52, 195-199.

Plenderleith, M., & Postman, L. Discriminative and verbal habits in incidental learning. American Journal of Psychology, 1956, 69, 236-243.

Plenderleith, M., & Postman, L. Individual differences in intentional and incidental learning. British Journal of Psychology, 1957, 48, 241-248.

Reason, J. T. Individual differences in auditory reaction time and loudness estimation. Perceptual and Motor Skills, 1968, 26, 1089-1090.

Rim, Y. Extroversion, neuroticism and the effect of praise or blame. British Journal of Educational Psychology, 1965, 35, 381-384.

GPO 827-705-4

Rohwer, W. D., Ammon, M. S., Suzuki, N., & Levin, J. R. Population differences and learning proficiency. Journal of Educational Psychology, 1971, 62, 1-14.

Rohwer, W. D., & Levin, J. R. Elaboration preferences and differences in learning proficiency. In J. Hellmuth (Ed.), Cognitive Studies, Vol. 2. New York: Brunner/Mazel, 1971.

Ross, J. The relationship between the Myers-Briggs type indicator and ability, personality and information tests. Australian Journal of Psychology, 1966, 18, 1-17.

Ryan, F. L. Advance organizers and test anxiety in programmed social studies instruction. California Journal of Educational Research, 1968, 19, 67-76.

Ryan, W. D., & Lakie, W. L. Competitive and noncompetitive performance in relation to achievement motive and manifest anxiety. Journal of Personality and Social Psychology, 1965, 1, 342-345.

Santostefano, S., Rutledge, L., & Randall, D. Cognitive styles and reading disability. Psychology in the Schools, 1965, 2, 57-62.

Sarason, S., Mandler, G., & Craighill, D. G. The effect of differential instructions on anxiety and learning. Journal of Abnormal and Social Psychology, 1952, 47, 561-565.

Shuell, T. J., & Keppel, G. Learning ability and retention. Journal of Educational Psychology, 1970, 61, 59-65.

Shulman, L. S. The study of individual inquiry behavior. Paper presented at the annual meeting of the American Psychological Association, Washington D.C., 1964.

Siegman, A. W. Cognitive, affective, and psychopathological correlations of the Taylor MAS. Journal of Consulting Psychology, 1956, 20, 137-141.

Simrall, D. Intelligence and the ability to learn. Journal of Psychology, 1947, 23, 27-43.

Skemp, R. R. Reflective intelligence and mathematics. British Journal of Educational Psychology, 1961, 31, 45-55.

Smith, L. M. Programmed learning in elementary school: An experimental study of relationships between mental abilities and performance. Technical Report, USOE Title VII Project 71151.01. University of Illinois, Training Research Laboratory, 1962.

Smock, C. D. Perceptual rigidity and closure phenomenon as a function of manifest anxiety in children. Child Development, 1958, 29, 237-247.

Spence, K. W., & Beecroft, R. S. Differential conditioning and level of anxiety. Journal of Experimental Psychology, 1954, 48, 399-403.

Spence, K.W., & Farber, I. E. Conditioning and extinction as a function of anxiety. Journal of Experimental Psychology, 1953, 45, 116-119.

Spence, K. W., Farber, I. E., & Taylor, E. The relation of electric shock and anxiety to level of performance in eyelid conditioning. Journal of Experimental Psychology, 1954, 48, 404-408.

Spence, K. W., Taylor, J., & Ketchel, R. Anxiety (drive) level and degree of competition in paired-associates learning. Journal of Experimental Psychology, 1956, 52, 306-310.

Speilberger, C. D. The effects of manifest anxiety on the academic achievement of college students. Mental Hygiene, 1962, 46, 420-426.

Speilberger, C. D., & Katzenmeyer, W. G. Manifest anxiety, intelligence, and college grades. Journal of Consulting Psychology, 1959, 23, 278.

Stake, R. E. Learning parameters, aptitudes, and achievements. Technical Report, Educational Testing Service, Princeton, N. J., June, 1958.

Stevenson, H. W., Hale, G. A., Klein, R. E., & Miller, L. K. Interrelations and correlates in children's learning and problem solving. Mimeo. Institute of Child Development, University of Minnesota, 1968.

Stevenson, H. W., & Odom, R. D. Interrelationships in children's learning. Child Development, 1965, 36, 7-19.

Stodolsky, S. S., & Lesser, G. Learning patterns in the disadvantaged. Harvard Educational Review, 1967, 37, 546-593.

Stolurow, L. M. Social impact of programmed instruction: Aptitudes and abilities revisited. In J. P. DeCecco (Ed.), Educational technology, New York: Holt, Rinehart, & Winston, 1964.

Sutter, E. G., & Reid, J. B. Learner variables and interpersonal conditions in computer assisted instruction. Journal of Educational Psychology, 1969, 60, 153-157.

Taylor, J. A. The relationship of anxiety to the conditioned eyelid response. Journal of Experimental Psychology, 1951, 41, 81-92.

Taylor, J. A., & Chapman, J. P. Paired-associate learning as related to anxiety. American Journal of Psychology, 1955, 68, 671.

Tobias, S. Research strategy in the effect of individual differences on achievement from programmed instruction. Paper presented at the annual meeting of the American Psychological Association, Washington, D.C., September, 1969.

Udolf, R. The verbal loop hypothesis as a predictor of individual differences in short-term recall of tachistoscopically presented binary numbers. Psychonomic Science, 1970, 21, 245-247.

Walberg, H. The social environment and individual learning: A test of the Bloom model. Journal of Educational Psychology, 1971, in press.

Westcott, M. R. A note on the stability of intuitive thinking. Psychological Reports, 1966, 19, 194.

Westcott, M. R. & Ranzoni, J. H. Correlates of intuitive thinking. Psychological Reports, 1963, 12, 595-613.

Westcott, M. R., & Tolchin, M. Individual and age-related differences in perceptual inference behavior. Perceptual and Motor Skills, 1968, 26, 683-697.

Whimbey, A. E., Mechanic, A., & Ryan, S. F. Individual differences in incidental learning and intentional learning. The Journal of Psychology, 1968, 70, 77-80.

White, S. H. Changes in learning processes in the late preschool years. Paper presented at the annual meeting of the American Educational Research Assocation, Chicago, February, 1968.

Williams, J. E., & Corder, R. F. The relationship of manifest anxiety to efficiency in problem solving. American Psychologist, 1957, 12, 420. (Abstract)

Woodrow, H. The effect of practice on groups of different initial ability. Journal of Educational Psychology, 1938, 29, 268-278.

Woodrow, H. The ability to learn. Psychological Review, 1946, 53, 147-158.

Zeaman, D., & House, B. J. The relation of I.Q. and learning. In R. M. Gagné (Ed.), Learning and individual differences. Columbus, Ohio: C. E. Merrill, 1967.

V

PROGRAMS AND PACKAGES FOR INDIVIDUALIZED EDUCATION

Ackerman, W. I. Teacher competence and pupil change. Harvard Educational Review, 1954, 24, 273-289.

Adams, J. J. Achievement and social adjustment of pupils in combination classes enrolling pupils of more than one grade level. Journal of Educational Research, 1953, 47, 151-155.

Amidon, E., & Flanders, N. A. The effects of direct and indirect teacher influence on dependent prone students learning geometry. Journal of Educational Psychology, 1961, 52, 286-291.

Anderson, G. L. A comparison of the outcomes of instruction under two theories of learning. In. E. J. Swenson, G. L. Anderson, & C. L. Stacey (Eds.), Learning theory in school situations. Minneapolis: University of Minnesota Press, 1949.

Anderson, R. C. Learning in discussions: A resume of the authoritarian democratic studies. Harvard Educational Review, 1959, 29, 201-215.

Biddle, B. J. The integration of teacher effectiveness research. In B. J. Biddle (Ed.), Contemporary research on teacher effectiveness. New York: Holt, Rinehart & Winston, 1964.

Bivens, L., Campbell, V., & Terry, D. Self-direction in programmed instruction: Effects on learning in low-ability students. American Institute for Research, AIR-DIO 7/63 TR, Palo Alto, California, 1963.

Burton, B. B., & Goldbeck, R. A. The effect of response characteristics in multiple life and choice alternatives on learning during programmed instruction. American Institutes for Research, San Mateo, California, 1962.

Campbell, V., Bivens, L., & Terry, D. Effects of mathematical ability pretraining and interest on self-direction in programmed instruction. American Institute for Research, AIR DIO, Palo Alto, California, 1963.

Carroll, J. B. A model of school learning. Teachers College Record, 1963, 64, 723-733.

Creager, J. G., & Murray, D. L. The use of modules in college biology teaching. The Commission on Undergraduate Education in the Biological Sciences, Publication No. 31, The American Institute of Biological Sciences, Washington D. C., 1971.

Curry, R. P. Report of four experiments in the use of television in instruction. Cincinnati, Ohio: Cincinnati Public Schools, 1960.

DeCecco, J. P. Class size and coordinated instruction. British Journal of Educational Psychology, 1964, 34, 65-74.

Della-Piana, G. An experimental evaluation of programmed learning. Journal of Educational Research, 1962, 55, 495-501.

Dreyer, R. E., & Beatty, W. H. Instructional television research. Project No. 1: An experimental study of college instruction using broadcast television. San Francisco: San Francisco State College, 1958.

Eash, M. J., & Bennet, C. M. The effects of class size on achievement and attitudes. American Educational Research Journal, 1964, 1, 229-239.

Eglash, A. A group discussion method of teaching psychology. Journal of Educational Psychology, 1954, 45, 257-267.

Faw, V. A psychotherapeutic method of teaching psychology. American Psychologist, 1949, 4, 104-109.

Gaa, J. P. Goal-setting behavior, achievement in reading, and attitude toward reading associated with individual goal-setting conferences. Technical Report No. 142, Wisconsin Research and Development Center for Cognitive Learning, University of Wisconsin, Madison, 1970.

Gerberich, J. R., & Warner, K. O. Relative instructional efficiencies of the lecture and discussion methods in a university course in American national government. Journal of Educational Research, 1936, 29, 574-579.

Ghatala, E. S., Sorenson, J. S., & Frayer, D. A. Individual conferences in reading: A planning guide. Working Paper No. 30, Wisconsin Research and Development Center for Cognitive Learning, University of Wisconsin, Madison, 1969.

Glaser, R. Adapting the elementary school curriculum to individual performance. In Proceedings of the 1967 Invitational Conference on Testing Problems. Princeton: Educational Testing Service, 1968.

Grinder, R. E. Flexibility and sequence: Educational psychology and the training of teachers. Educational Psychologist, 1970, 8, 9-12.

Guetkow, H., Kelly, E., & McKeachie, W. J. An experimental comparison of recitation, discussion, and tutorial methods in college teaching. Journal of Educational Psychology, 1954, 45, 193-207.

Haigh, G. V., & Schmidt, W. The learning of subject matter in teacher-centered and group-centered classes. Journal of Educational Psychology, 1956, 47, 295-301.

Hopkins, K. D., Oldridge, O. A., & Williamson, M. An empirical comparison of pupil achievement and other variables in graded and ungraded classes. American Educational Research Journal, 1965, 2, 207-215.

Howes, V. M. Individualizing instruction in reading and social studies: Selected readings on programs and practices. London: MacMillan, 1970.

Howes, V. M. Individualizing instruction in science and mathematics: Selected readings on programs, practices, and uses of technology. London: MacMillan, 1970.

Hutchins, C. L., Dunning, B., Madsen, M., & Rainey, S. I. Minicourses work. San Francisco, California: Far West Laboratory for Educational Research and Development, 1971.

Hutchinson, W. L. Creative and productive thinking in the classroom. Unpublished doctoral dissertation, University of Utah, 1963.

IGE (Individually Guided Education): The learning program. Dayton, Ohio: Institute for Development of Educational Activities, 1970.

IGE (Individually Guided Education): Unit operations and roles. Datyon, Ohio: Institute for Development of Educational Activities, 1970.

IGE (Individually Guided Education): Principals' handbook. Dayton, Ohio: Institute for Development of Educational Activities, 1970.

Individualization in the schools: The challenge and the options. National School Public Relations Association, Washington, D.C., 1971.

Jacobs, J.N., & Bollenbacher, J. K. An experimental study of the effectiveness of television vs. classroom instruction in sixth-grade science in the Cincinnati Public Schools, 1956-1957. Journal of Educational Research, 1959, 52, 184-189.

Jacobs, J. N., & Bollenbacher, J. K. An experimental study in teaching high school biology by television in the Cincinnati Public Schools. Science Education, 1959, 43, 399-405.

Jacobs, J. N., Bollenbacher, J. K., & Keiffer, M. Teaching seventh-grade mathematics by television to homogeneously grouped below average students. The Mathematics Teacher, 1961, 54, 551-555.

Jacobs, P. I., Maier, M: H., & Stolurow, L. M. A guide to evaluating self-instructional programs. New York: Holt, Rinehart & Winston, 1966.

Kennedy, B. J. Motivational effects of individual conferences and goal setting on performance and attitudes in arithmetic. Technical Report No. 61, Wisconsin Research and Development Center for Cognitive Learning, University of Wisconsin, Madison, 1968.

Klausmeier, H. J., Cook, M., Goodwin, W. L., Tagatz, G. E., & Pingel, L. Individualizing instruction in language arts through development and research in R & I units of local schools, 1965-1966. Technical Report No. 19, Wisconsin Research and Development Center for Cognitive Learning, University of Wisconsin, Madison, 1967.

Klausmeier, H. J., Morrow, R., & Walter, J. E. Individually Guided Education in the multiunit elementary school: Guidelines for implementation. Madison, Wisconsin: Wisconsin Department of Public Instruction, August, 1968.

Klausmeier, H. J., Morrow, R. G., Walter, J. E., & Way, R. S. Individually guided education in the multiunit elementary school--guidelines for implementation. Practical Paper. Wisconsin Research and Development Center for Cognitive Learning, University of Wisconsin, Madison, 1968.

Klausmeier, H. J., & Quilling, M. (Eds.) Research and development activities in R & I units of four elementary schools of Madison, Wisconsin, 1966-1967. Technical Report No. 48, Wisconsin Research and Development Center for Cognitive Learning, University of Wisconsin, Madison, 1968.

Klausmeier, H. J., Schwenn, E. A., & Lamal, P. A. A system of individually guided motivation. Practical Paper No. 9, Wisconsin Research and Development Center for Cognitive Learning, University of Wisconsin, Madison, 1970.

Kress, G. C., Jr., & Gropper, G. L. A comparison of two strategies for individualizing fixed-paced programmed instruction. American Educational Research Journal, 1966, 3, 273-280.

Krumboltz, J. D., & Farquhar, W. W. The effect of three teaching methods on achievement and motivational outcomes in a how-to-study course. Psychological Monographs: General and Applied, 1957, 71, 1-26.

Kurtz, E. B. Individualizing instruction: Design from a college classroom. Science. Senior high school edition. New London, Conn.: Croft Education Services, 1969.

Kurtz, E. B., & Bosanko, D. M. Biology--an individualized approach. Emporia, Kansas: Teachers College Press, Kansas State Teachers College, 1970.

Lamal, P. A. A preliminary study of tutorial procedures in the elementary school. Working Paper No. 39, Wisconsin Research and Development Center for Cognitive Learning, University of Wisconsin, Madison, 1970.

Leton, D. A. An evaluation of course methods in teaching child development. Journal of Educational Research, 1961, 55, 118-122.

Lindvall, C. M., & Bolvin, J. O. Programmed instruction in the schools: An application of programming principles in "individually prescribed instruction." In P. C. Lange (Ed.), Programmed instruction. Sixty-sixth yearbook, Part II, National Society for the Study of Education. Chicago: University of Chicago Press, 1967.

Maier, M. H., & Jacobs, P. I. The effects of variations in a self-instructional program on instructional outcomes. Psychological Reports, 1966, 18, 539-546.

Manley, M. J. An approach toward individualizing instruction in measurement courses. Paper presented at the annual meeting of the Wisconsin Educational Research Association, Oshkosh, Wisconsin, December, 1970.

McKeachie, W. J. Students, groups, and teaching methods. American Psychologist, 1958, 13, 580-584.

GPO 827-795-3

McKeachie, W. J. Motivation, teaching methods, and college learning. In M. R. Jones (Ed.), Nebraska symposium on motivation, 1961. Lincoln, Nebraska: University of Nebraska Press, 1961.

McKeachie, W. J. Procedures and techniques of teaching: A survey of experimental studies. In N. Sanford (Ed.), The American college. New York: Wiley, 1962.

McNeil, J. D. Programmed instruction vs. usual classroom procedures in teaching boys to read. American Educational Research Journal, 1964, 1, 113-119.

Morrow, R., Sorenson, J., & Glasrud, G. Evaluation procedures for use with the multiunit elementary school personnel. Working Paper No. 21, Wisconsin Research and Development Center for Cognitive Learning, University of Wisconsin, Madison, 1969.

Nachman, M., & Opochinsky, S. The effects of different teaching methods: A methodological study. Journal of Educational Psychology, 1958, 49, 245-249.

O'Connor, P., Atkinson, J. W., & Horner, M. Motivational implications of ability grouping in school. In J. W. Atkinson & N. T. Feather (Eds.), A theory of achievement motivation. New York: Wiley, 1966.

O'Donnel, P. A., & Lavaroni, C. W. Elements of individualized instruction. The Education Digest, 1970, 36, 17-19.

Olson, K. V. An experimental evaluation of a student-centered method and a teacher-centered method of biological science instruction for general education of college students. Journal of Experimental Education, 1959, 27, 225-230.

Patton, J. A. A study of the effects of student acceptance of responsibility and motivation on course behavior. Unpublished doctoral dissertation, University of Michigan, 1955.

Payne, D. A., Krathwohl, D. R., & Gordon, J. The effect of sequence in programmed instruction. American Educational Research Journal, 1967, 4, 123-132.

Pellegrin, R. J. Professional satisfaction and decision-making in the multiunit school. Eugene, Oregon: Center for the Advanced Study of Educational Administration, University of Oregon, 1969.

Pellegrin, R. J., Slagle, A. T., & Johansen, L. Some organizational characteristics of multiunit schools. Working Paper No. 22, Wisconsin Research and Development Center for Cognitive Learning, University of Wisconsin, Madison, 1969. (Also: Eugene, Oregon, Center for the Advanced Study of Educational Administration, University of Oregon, 1969.)

PLAN (Program for Learning in Accordance with Needs): Bibliography of Project PLAN Development 1967-1970. American Institutes for Research, Palo Alto, California, 1970.

Postlethwait, S. N. Independent study--an audio-tutorial approach. Proceedings of the 19th Annual National Conference on Higher Education, 1964, pp. 134-135.

Postlethwait, S. N. Course organization for individualized instruction. Commission on Undergraduate Education in the Biological Sciences News, 1965, 1, 1-2. (American Institute of Biological Sciences, Washington, D. C.)

Postlethwait, S. N. Time for minicourses? Commission on Undergraduate Education in the Biological Sciences News, 1969, 5, 4-6. (American Institute of Biological Sciences, Washington, D. C.)

Postlethwait, S. N. Time for microcourses? Library College Journal, 1969, 2, 24.

Postlethwait, S. N., & Novak, J. D. The use of 8mm film loops in individualized instruction. Annals of the New York Academy of Science, 1966, 142, 464.

Quilling, M., Cook, D. M., Wardrop, J. L., & Klausmeier, H. J. Research and development activities in R & I units of two elementary schools of Milwaukee, Wisconsin, 1966-1967. Technical Report No. 46, Wisconsin Research and Development Center for Cognitive Learning, University of Wisconsin, Madison, 1968.

Rasmussen, G. R. An evaluation of a student-centered and instructor-centered method of conducting a graduate course in education. Journal of Educational Psychology, 1956, 47, 449-461.

Resnick, L. B. Design of an early learning curriculum. Working Paper No. 16, Learning Research and Development Center, University of Pittsburgh, Pa., 1967.

Resnick, L. B., Wang, M. C., & Kaplan, J. A hierarchically sequenced mathematics curriculum. Learning Research and Development Center, University of Pittsburgh, Pa., 1970.

Samuels, S. J. Thirty-two ways to teach educational psychology. Educational Psychologist, 1971, 8, 42-45.

Sanderson, R. A., Postlethwait, S. N., & Sanderson, S. E. Individualized instruction through audio tape: Why, how, what? Pacific Speech, 1968, 2, 40-58.

Sattler, H. E., Grinder, R. E., & Clark, M. C. Prospects for modules in educational psychology. Journal of Teacher Education, 1972, in press.

Schwenn, E. A., Sorenson, J. S., & Bavry, J. The effect of individual adult-child conferences on the independent reading or elementary school children. Technical Report No. 125, Wisconsin Research and Development Center for Cognitive Learning, University of Wisconsin, Madison, 1970.

Sorenson, J. S., Schwenn, E. A., Bavry, J. L. The use of individual and group goal-setting conferences as a motivational device to improve student conduct and increase student self-direction: A preliminary study. Technical Report No. 123, Wisconsin Research and Development Center for Cognitive Learning, University of Wisconsin, Madison, 1970.

Sorenson, J. S., Schwenn, E. A., & Klausmeier, H. J. The individual conference--a motivational device for increasing independent reading in the elementary grades. Practical Paper No. 8, Wisconsin Research and Development Center for Cognitive Learning, University of Wisconsin, Madison, 1969.

Spence, R. B. Lecture and class discussion in teaching educational psychology. Journal of Educational Psychology, 1928, 19, 454-463.

Steen, M. T. A program of teacher development for a system of individualized education. Paper presented at the annual meeting of the American Psychological Association, Washington, D. C., September, 1969.

Stolurow, L. M. Model the master teacher or master the teaching model. In J. D. Krumboltz (Ed.), Learning and the educational process. Chicago: Rand-McNally, 1965.

Sturgis, H. W. The relationship of the teacher's knowledge of the student's background to the effectiveness of teaching. Unpublished doctoral dissertation, New York University, 1958.

Suppes, P., & Morningstar, M. Evaluation of three computer-assisted instruction programs. Technical Report No. 142. In the Psychology Series, Institute for Mathematical Studies in the Social Sciences, Stanford University, 1969.

Taylor, J. E., & Fox, W. L. Differential approaches to training. Professional paper 47-57. Human Resources Research Office, Alexandria, Virginia, 1967.

Thelan, H. A. Classroom grouping for teachability. New York: Wiley, 1967.

Wang, M. C., Resnick, L. B., & Scheutz, P. A. Pep in the Frick Elementary School. Interim evaluation report of the primary education project. Working Paper No. 57, Learning Research and Development Center, University of Pittsburgh, Pa., 1970.

Ward, J. N. Group-study vs. lecture-demonstration method in physical science instruction. Journal of Experimental Education, 1956, 24, 197-210.

Weisgerber, R. A. (Ed.) Developmental efforts in individualized learning. Itasca, Ill.: F. E. Peacock, 1971.

Weisgerber, R. A. (Ed.) Perspectives in individualized learning. Itasca, Ill.: F. E. Peacock, 1971.

Wrobel, P., & Resnick, L. B. An investigation of the effects of the application and removal of a token economy on the working behavior of sixteen Headstart children. Working Paper No. 58, Learning Research and Development Center, University of Pittsburgh, Pa., 1970.

Zweibelson, I., Bahnmuller, M., & Lyman, L. Team teaching and flexible grouping in the junior high-school social studies. Journal of Experimental Education, 1965, 34, 20-32.

VI

MISCELLANEOUS

Anderson, H. H., & Brewer, J. E. Studies of teachers' classroom personalities: I. Dominative and socially integrative behavior of kindergarten teachers. Applied Psychological Monographs, 1945, No. 6.

Anderson, H. H., & Brewer, J. E. Studies of teachers' classroom personalities: II. Effects of teachers' dominative and integrative contacts on children's classroom behavior. Applied Psychological Monographs, 1946, No. 8.

Biddle, B. J., & Adams, R. S. Teacher behavior in the classroom context. In L. Siegel (Ed.), Instruction: Some contemporary viewpoints. San Francisco: Chandler, 1967.

Campbell, D. C. Teacher-pupil personal value discrepancy as a prediction of course achievement. Mimeo, Harvard University, 1967.

Ferguson, L. R., & Macoby, E. Interpersonal correlates of differential abilities. Child Development, 1966, 37, 549-571.

Flanders, N. A. Teacher influence on pupil attitudes and achievement. Final Report, University of Minnesota Project 397, CRP, U.S. Office of Education, 1960.

Greenbaum, C. W. Effect of situational and personality variables on improvisation and attitude change. Journal of Personality and Social Psychology, 1966, 4, 260-269.

Groesbeck, B. L. Toward description of personality in terms of configuration of motives. In J. W. Atkinson (Ed.), Motives in fantasy, action, & society. New York: Van Nostrand-Reinhold, 1958.

Gropper, G. L. Controlling student response during visual presentations. American Institutes for Research, Pittsburgh, Pennsylvania, 1965.

Guilford, J. P., & Hoepfner, R. Structure of intellect factors and their tests. Reports from the Psychological Laboratory of the University of Southern California, No. 36, 1966.

Guttman, L. The structure of relations among intelligence tests. Proceedings, 1964 Invitational Conference on Testing Problems. Educational Testing Service, Princeton, N. J., 1965.

Guttman, L., & Schlesinger, I. M. The analysis of diagnostic effectiveness of a facet design battery of achievement and analytical ability tests. Bulletin, Israel Institute of Applied Social Research, Jerusalem, Israel, 1967.

Heil, L. M., Powell, M., & Fieffer, I. Characteristics of teacher behavior related to the achievement of children in several elementary grades. Cooperative Research Project No. 353. Mimeo. Brooklyn College, 1960.

Horn, J., & Cattell, R. B. Refinement and test of the theory of fluid and crystallized intelligence. Journal of Educational Psychology, 1966, 57, 253-276.

Keeney, T. J., Canninzo, S. R., & Flavell, J. H. Spontaneous and induced verbal rehearsal in a recall task. Child Development, 1967, 38, 953-966.

Lawrence, D. H. The evaluation of training and transfer programs in terms of efficiency measures. Journal of Psychology, 1954, 38, 367-382.

Lim, K. B. Prompting vs. confirmation, pictures vs. transflations, and other variables in children's learning of grammar in a second language. Unpublished doctoral dissertation, Harvard University, 1968.

Mair, J. M. M. Personal constructs and personal growth, De Psycholoog, 1969, 4, 360-377.

Meyers, C. E. Primary abilities at mental age six. Monograph Society for Research in Child Development, 1962, 27, 1.

Moely, B. E., Olson, F. A., Halwes, T. G., & Flavell, J. H. Production deficiency in young children's clustered recall. Developmental Psychology, 1969, 1, 26-34.

Reese, H. W. Discrimination learning set in children. In L. Lipsitt & C. Spiker (Eds.), Advances in child development and behavior. Vol. I. New York: Academic Press, 1964.

Rotter, J. B. Generalized expectancies for internal versus external control of reinforcement. Psychological Monographs, 1966, 80 (1, Whole No. 609).

Tyler, L. E. The stability of patterns of PMA among grade school children. Educational and Psychological Measurement, 1958, 18, 769-774.

Washburne, C., & Heil, L. M. What characteristics of teachers affect children's growth? School Review, 1960, 68, 420-428.

Wicklegren, W., & Cohen, D. H. On artificial language and memory approach to concept attainment. Psychological Reports, 1962, 11, 815-827.

GPO 827-795-2

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